



Hamilton

**Red Hill Business Park South
Transportation Master Plan Addendum**

**MUNICIPAL CLASS
ENVIRONMENTAL ASSESSMENT**

**Prepared For:
CITY OF HAMILTON**

August 2013

THE PUBLIC RECORD

A copy of this document has been submitted to the following office of the Ministry of the Environment to be placed in the Public Record:

Hamilton Regional Office
King St. West, 12th Floor
Hamilton, Ontario L8P 4Y7
Toll free: 1-800-668-4557
Phone: 905-521-7640

This Transportation Master Plan Addendum is also available for public review during normal business hours at:

Office of the City Clerk City Hall 71 Main Street West, 1 st Floor Hamilton, Ontario L8P 4Y5 Phone: 905-546-CITY(2489)	City Centre Public Works Department 77 James Street North, Suite 320 Hamilton, Ontario L8R 2K3 Phone: 905-546-CITY(2489)
Sherwood Library 467 Upper Ottawa Street Hamilton, Ontario L8T 3T3 Phone: 905-546-3249	Valley Park Library 970 Paramount Drive Hamilton, Ontario L8J 1Y2 Phone: 905-573-3141

Tuesday, September 24, 2013

Red Hill Business Park South Transportation Master Plan Addendum (August 2013)
ADDENDUM TO GLOVER ROAD PREFERRED ALTERNATIVE – CITY COUNCIL RESOLUTION

The following outlines a change related to the Glover Road Preferred Alternative identified in the Red Hill Business Park South Transportation Master Plan (TMP) Addendum:

The TMP Addendum documents the assessment and evaluation of alternatives for Twenty Road and Glover Road. **The projects identified in the TMP Addendum are:**

- (i) Twenty Road from Dartnall Road to Glover Road (Schedule B);
- (ii) Twenty Road extension from Glover Road to Trinity Church Arterial Road and the associated southerly extension of the Trinity Church Arterial Road to meet Twenty Road (Schedule C); and,
- (iii) Glover Road traffic island (Schedule A+).

After completion of the TMP Addendum, Hamilton City Council considered stakeholder feedback regarding Glover Road at the September 11, 2013 City Council meeting. **City Council endorsed the filing of the TMP Addendum for the following projects:**

- (i) Twenty Road from Dartnall Road to Glover Road (Schedule B);
- (ii) Twenty Road extension from Glover Road to Trinity Church Arterial Road and the associated southerly extension of the Trinity Church Arterial Road to meet Twenty Road (Schedule C); and,
- (iii) That a cul de sac be installed between the southern most property of Maple Leaf Foods by 580 Glover Road.

As a result of the City Council resolution the proposed design at Glover Road has changed as noted in the following decision tracking table:

Decision Tracking – Glover Road	
TMP Addendum	Revision to TMP Addendum (City of Hamilton Council Resolution, Sept 11, 2013)
Glover Road traffic island (Schedule A+).	Installation of a cul-de-sac between the southern most property of Maple Leaf Foods by 580 Glover Road (Schedule A+)

As a result, the City of Hamilton is proposing the installation of **back to back cul-de-sacs on Glover Road** north of Dickenson Road East in the vicinity of 580 Glover Road. That alternative is identified as **Glover Road Alternative 2** in the TMP Addendum. Other than closing Glover Road to thru traffic and costs associated with cul-de-sac construction, the revision to the Glover Road project (i.e. changing from a traffic island to cul-de-sacs) does not notably change the impacts and mitigation measures identified in the TMP Addendum.

City Council also required that written notification be provided to the residents of **Glover Road between Dickenson Road and Rymal Road (Wards 6 and 11)** respecting the thirty (30) day public review (appeal period) of the Red Hill Business Park South TMP Addendum. That written notification has been distributed as part of the public notification process for the TMP Addendum.

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GLOSSARY

ANSI -	Area of Natural and Scientific Interest
Class EA -	Class Environmental Assessment
COSEWIC -	Committee on the Status of Endangered Wildlife in Canada
EA Act -	Ontario <i>Environmental Assessment Act</i>
ESA -	<i>Endangered Species Act</i>
HCA -	Hamilton Conservation Authority
LSW -	Locally Significantly Wetland
MBCA -	<i>Migratory Birds Convention Act</i>
MNR -	Ontario Ministry of Natural Resources
NGIBP -	North Glanbrook Industrial Business Park
NHIC -	Natural Heritage Information Centre
NHS -	Natural Heritage System
NPCA -	Niagara Peninsula Conservation Authority
PIC -	Public Information Centre
PSW -	Provincially Significant Wetland
RHBPS -	Red Hill Business Park South
ROPA 9 -	Rymal Road Planning Area
SAR -	Species at Risk
SARA -	<i>Species at Risk Act</i>
TMP -	Transportation Master Plan

EXECUTIVE SUMMARY

In an effort to spur industrial development and make available “shovel ready lands”, the City of Hamilton undertook the *North Glanbrook Industrial Business Park (NGIBP) Transportation Master Plan* (2006) to identify a road network that will support the development of the lands in accordance with the approved land uses identified in the Secondary Plan for the area. The Transportation Master Plan study, including stakeholder consultation, was undertaken following the environmental planning process for Master Plans under the Municipal Class Environmental Assessment (Municipal Engineers Association, 2000). The study was necessary in order to plan for the expected increase in business park related traffic on roadways within and adjacent to the NGIBP.

Since the completion of the NGIBP Transportation Master Plan (TMP) **the business park has been renamed the Red Hill Business Park South.**

The Twenty Road realignment identified in the NGIBP Transportation Master Plan (TMP) is no longer viable due to the form of industrial development occurring in the business park. As a result, a TMP Addendum is required focusing on the Twenty Road realignment and the southern portion of the Trinity Church Road Extension. In addition, completion of the TMP Addendum provides an opportunity to further address the transition of Glover Road from the south boundary of the business park to the adjacent residential area.

This TMP Addendum identifies a road network that will support the development of the business park lands in accordance with the current approved land uses and proposed developments for the area. The objectives of the study were to:

- Identify alignment alternatives for Twenty Road East of Dartnall Road and Trinity Church Arterial Road Corridor intersection with Twenty Road; and
- Identify functional alternatives for Glover Road north of Dickenson Road East.

Two alternatives were identified for Twenty Road:

Twenty Road: Alternative 1 – Alignment as recommended in the 2006 TMP

- Alignment of Twenty Road to swing to the north between the future Dartnall Road Extension and Glover Road and then continue on a straight line to connect with the Trinity Church Arterial Road Corridor.

Twenty Road: Alternative 2 – Extend existing road allowance directly east to the future Trinity Church Arterial Road Corridor

- Alignment of Twenty Road to extend directly east from the existing right-of-way and intersect with a southerly extension of the Trinity Church Arterial Road Corridor.

Three alternatives were identified for Glover Road:

Glover Road: Alternative 1 – Do nothing – with appropriate traffic signs

- No change to the existing condition traffic operations on Glover Road north of Dickenson Road East.
- Addition of appropriately placed traffic signs to discourage truck traffic within the Glover Road residential area.

Glover Road: Alternative 2 – Cul-de-sacs on Glover Road north of Dickenson Road East

- Creation of cul-de-sacs between the business park and Glover Road residential area.

Glover Road: Alternative 3 – Traffic island on Glover Road north of Dickenson Road East – with appropriate traffic signs

- Installation of a traffic island at the transition between the business park and Glover Road residential area.
- Addition of appropriately placed traffic signs to discourage truck traffic within the Glover Road residential area.

Based on the assessment and evaluation of alternatives, Twenty Road Alternative 2 and Glover Road Alternative 3 were identified as the preferred alternative.

Stakeholder consultation was completed as part of the TMP Addendum Study and two public consultation events were held:

- Public Information Centre (PIC) – June 25, 2012
- Glover Road Public Meeting – December 4, 2012

In addition, study materials were made available online at:
www.hamilton.ca/redhilltmpaddendum.

This Transportation Master Plan Addendum completes Phases 1 and 2 of the Municipal Class Environmental Assessment (Class EA) process for the road works addressed in this report.

The Class EA Schedules for proposed works identified in this TMP Addendum are as follows:

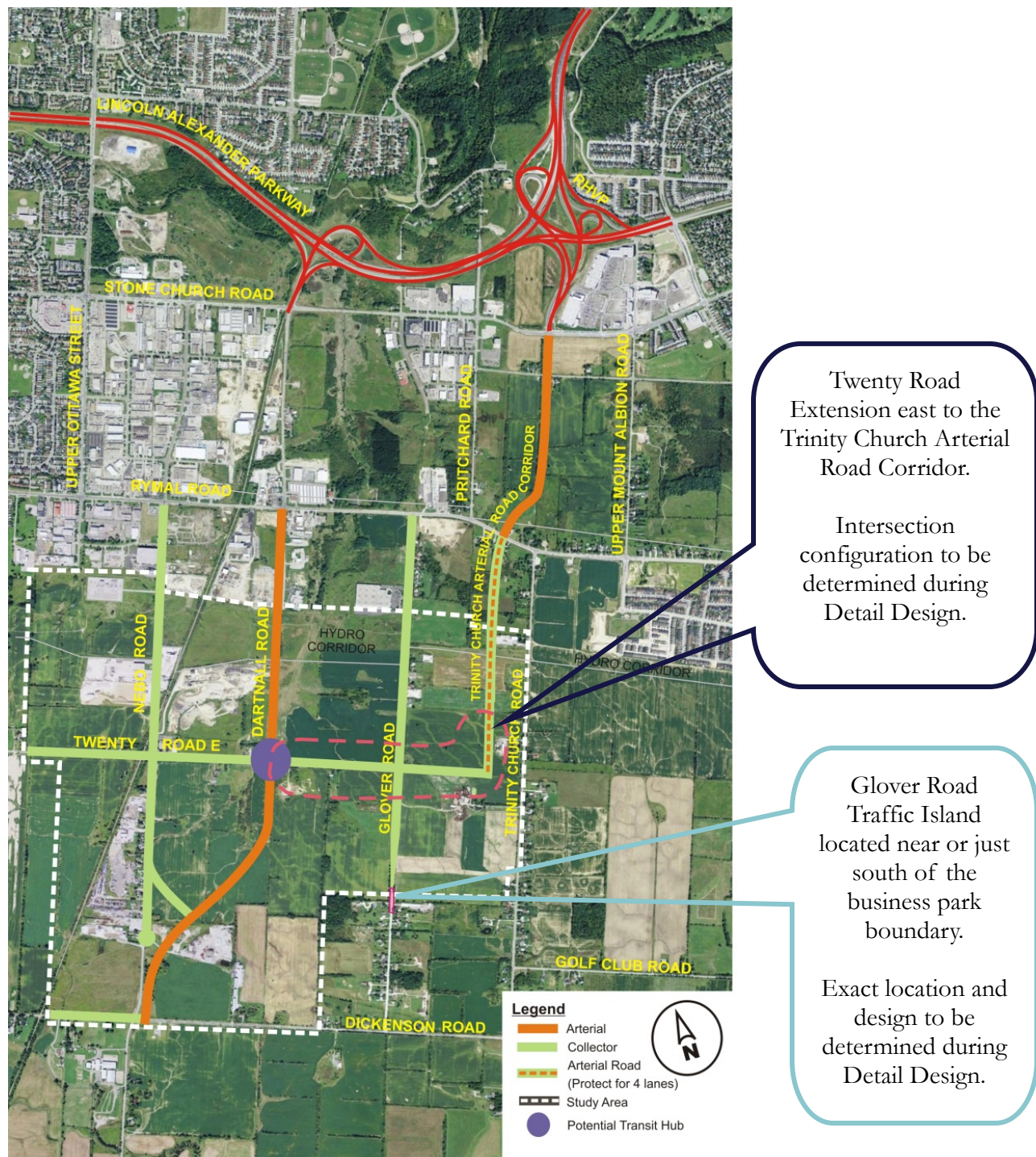
- Schedule C¹ - Twenty Road from Glover Road to the Trinity Church Arterial Road Corridor and the associated southerly extension of the Trinity Church Arterial Road Corridor to meet Twenty Road

¹ The remaining Class EA phases, i.e. Phases 3 and 4, will be completed subsequent to this Transportation Master Plan Addendum.

- Schedule B - Twenty Road from Dartnall Road to Glover Road
- Schedule A+ - Glover Road traffic island

The preferred transportation network is shown in **Exhibit E-1**.

EXHIBIT E-1: PREFERRED TRANSPORTATION NETWORK



1.0 INTRODUCTION

1.1 STUDY OVERVIEW

1.1.1 North Glanbrook Industrial Business Park Transportation Master Plan (Completed in 2006)

In an effort to spur industrial development and make available “shovel ready lands”, the City of Hamilton undertook the *North Glanbrook Industrial Business Park (NGIBP) Transportation Master Plan* (2006) to identify a road network that will support the development of the lands in accordance with the approved land uses identified in the Secondary Plan for the area. The Transportation Master Plan study, including stakeholder consultation, was undertaken following the environmental planning process for Master Plans under the Municipal Class Environmental Assessment (Municipal Engineers Association, 2000). The study was necessary in order to plan for the expected increase in business park related traffic on roadways within and adjacent to the NGIBP.

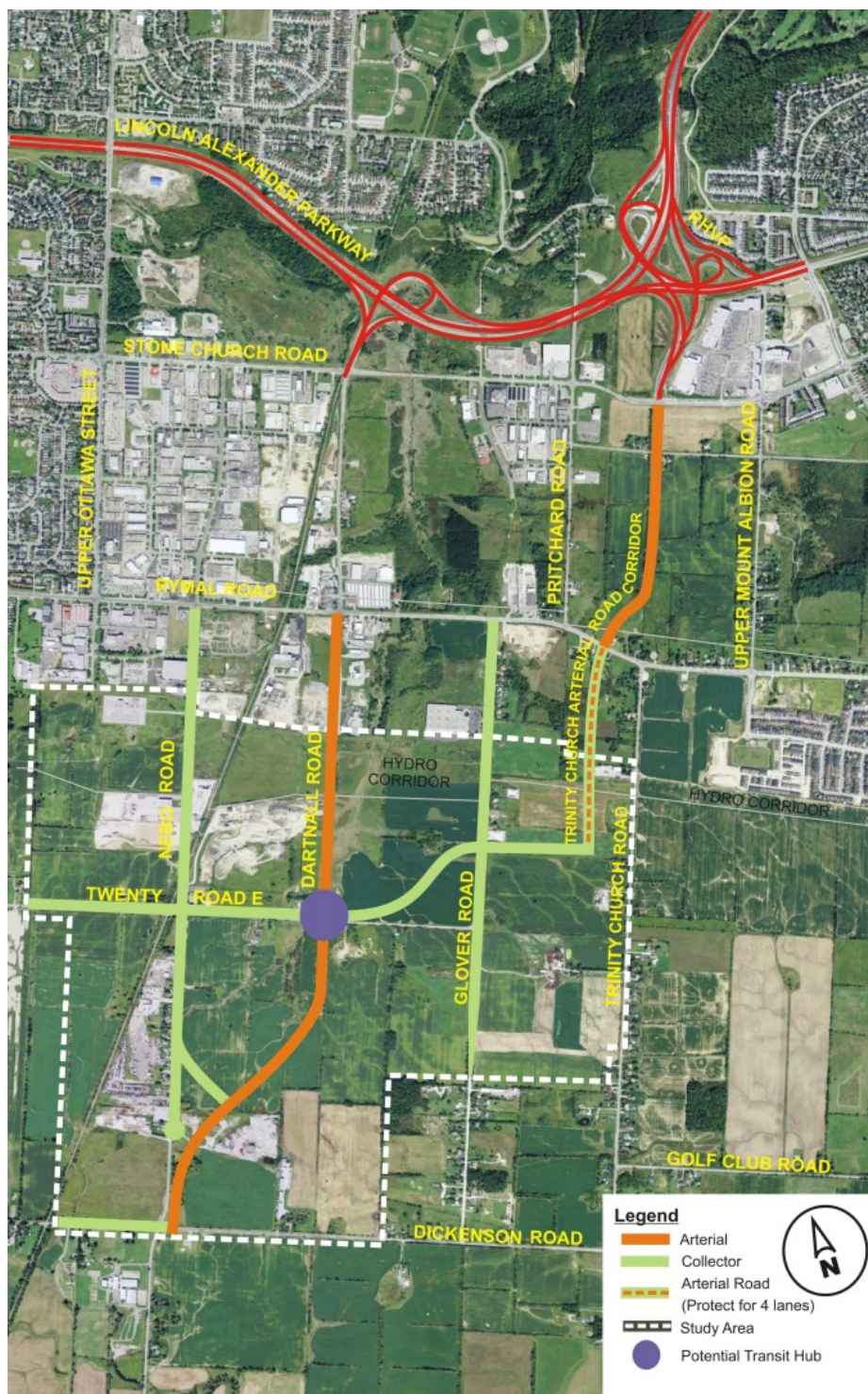
Since the completion of the NGIBP Transportation Master Plan (TMP) **the business park has been renamed the Red Hill Business Park South.**

Following the completion of the NGIBP TMP, the Municipal Class EA process was completed for two identified Schedule C projects – Dartnall Road Extension and Trinity Church Road. Those studies identified the alignment for Dartnall Road within the business park and the Trinity Church Arterial Road Corridor to Twenty Road (see **Exhibit 1.1.1-1**). Those roadways are now part of the approved transportation network within the business park. The currently approved transportation network is shown in **Exhibit 1.1.1-1**.

The Trinity Church Arterial Road Corridor Class EA did not determine the road alignment south of Twenty Road – the alignment of the Trinity Church Arterial Road south of Twenty Road is to be assessed as a separate Schedule C project. In addition, given the interaction between Twenty Road and Trinity Church Road there is a need to identify the location of the intersection of the future Trinity Church Arterial Road Corridor with Twenty Road.

The NGIBP TMP also identified the Twenty Road alignment from the Dartnall Road Extension to Trinity Church Road as a Schedule C project; however, a standalone study has not yet been completed to address this assessment.

EXHIBIT 1.1.1-1: APPROVED TRANSPORTATION NETWORK (NGIBP TMP, DARTNALL ROAD CLASS EA, TRINITY CHURCH ARTERIAL ROAD CORRIDOR CLASS EA)



1.1.2 Red Hill Business Park South Transportation Master Plan Addendum (Current Study)

The Twenty Road realignment identified in the 2006 Transportation Master Plan (TMP) is no longer viable due to the form of industrial development occurring in the business park. As a result, a TMP Addendum is required focusing on the Twenty Road realignment and the southern portion of the Trinity Church Road Extension. In addition, completion of the TMP Addendum provides an opportunity to further address the transition of Glover Road from the south boundary of the business park to the adjacent residential area.

This Transportation Master Plan (TMP) Addendum identifies a road network that will support the development of the business park lands in accordance with the current approved land uses and proposed developments for the area. The objectives of the study were to:

- Identify alignment alternatives for Twenty Road East of Dartnall Road and Trinity Church Arterial Road Corridor intersection with Twenty Road; and
- Identify functional alternatives for Glover Road north of Dickenson Road East.

This TMP Addendum is intended to fulfil the Class EA requirements for Schedule B projects that are identified and to outline additional work that will be required for any identified Schedule C Projects in accordance with the Municipal Class EA process. Details regarding the Municipal Class EA process are provided in **Section 1.2 (Overview of the Planning Process)**. The Class EA Schedules for proposed works addressed by this TMP Addendum are outlined in **Section 7.1 (Elements Requiring Further EA Approval)**.

1.2 OVERVIEW OF THE PLANNING PROCESS

1.2.1 Overview of the Municipal Class EA Process

Under the provisions of the Ontario *Environmental Assessment Act* (EA Act) certain types of provincial and municipal undertakings can meet the requirements of the EA Act through the use of an approved environmental planning process referred to as a Class Environmental Assessment (Class EA).

The Class EA process provides a self-assessing procedure by which a group or “class” of undertakings can be planned and implemented in a way that fulfills the requirements of the EA Act without proponents having to prepare an Individual EA for approval. In other words, if the Class EA process is followed these undertakings do not require a formal approval from the Ontario Ministry of the Environment. Upon completion of the appropriate process, the undertaking is considered approved.

The Municipal Class EA (Municipal Engineers Association, October 2000, as amended in 2007 & 2011) outlines such a process for a class of municipal projects. The Class EA process for municipal road projects is shown in **Exhibit 1.2.1-1** and includes:

- Phase 1 - identify the problem or opportunity;
- Phase 2 - identify alternative solutions;

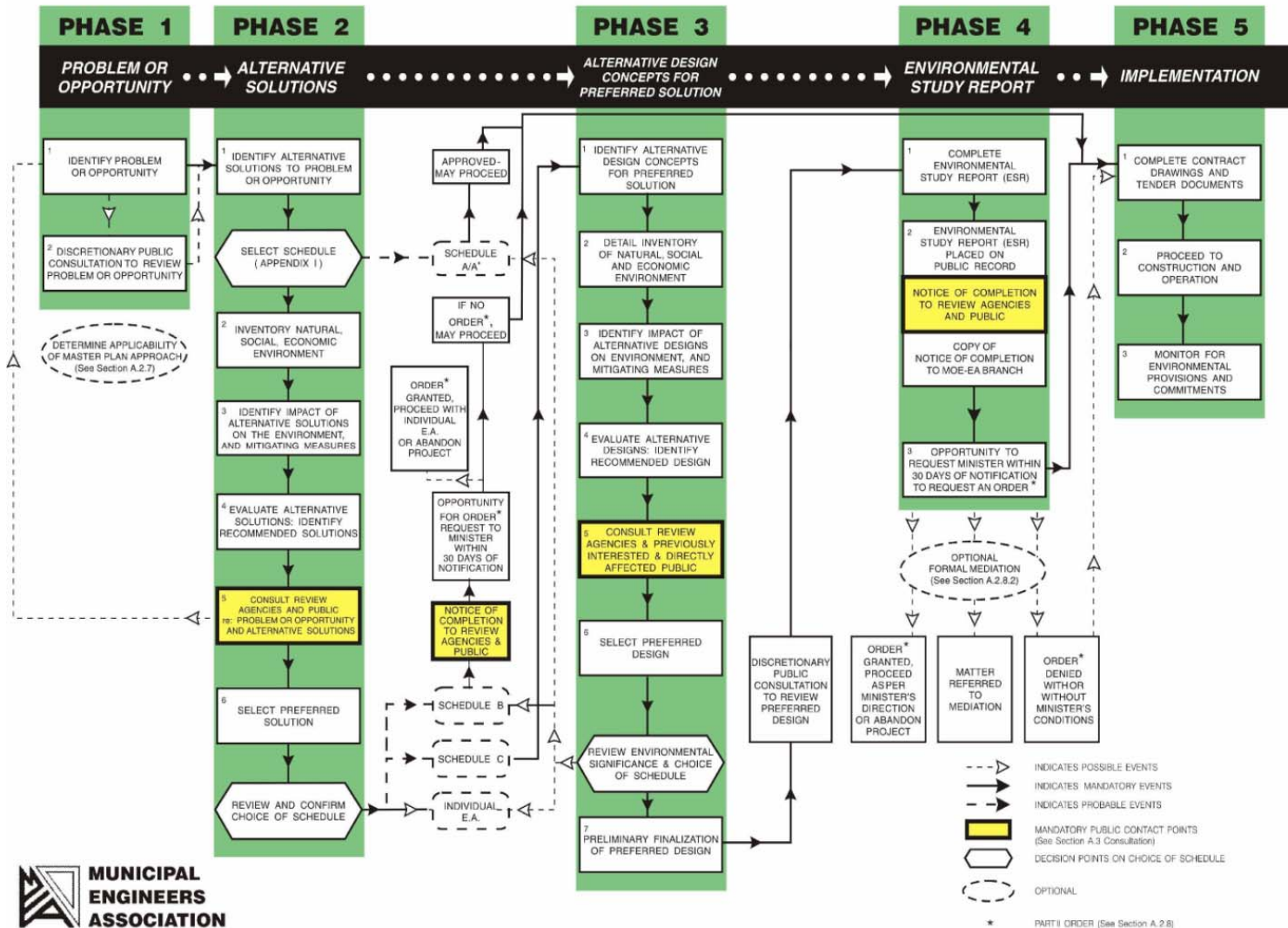
- Phase 3 - examine alternative design concepts for the preferred design;
- Phase 4 - prepare and file an Environmental Study Report; and,
- Phase 5 - proceed to Detail Design, construction and operation.

The Class EA recognizes that certain undertakings require different degrees of assessment, depending on their environmental effects and defines four schedules of undertakings:

- Schedule A undertakings are considered to be minor in scale and have minimal adverse environmental effects. These undertakings are considered approved without the need for any further assessment and may proceed directly to Phase 5 of the Class EA process.
- Schedule A+ undertakings are those that are pre-approved under the Municipal Class EA, however, the public is to be advised prior to project implementation. The manner in which the public is advised is to be determined by the proponent.
- Schedule B undertakings are those with some potential for adverse environmental effects. However, existing guidelines, approved policies and other provincial legislation regulate the majority of these effects. These undertakings require the completion of Phase 1 and 2 of the Class EA process.
- Schedule C undertakings are those undertakings with the potential for greater adverse environmental effects and must follow the planning and consultation process outlined in the Class EA (Phase 1-4). The documentation of these processes is presented in an Environmental Study Report (ESR).

EXHIBIT 1.2.1-1: MUNICIPAL CLASS EA PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the Municipal Class EA



The Municipal Class EA process includes an **appeal provision** to change the status of a project from being subject to the Municipal Class EA process to being subject to an Individual EA as per Part II of the EA Act.

A Part II Order (commonly known as a “bump-up”) refers to changing the status of a project from being subject to the Class EA process to being subject to an Individual EA. The latter requires the submission of a formal document (as required by Section 6(1) of the EA Act) to the Minister of the Environment for government review and approval.

If concerns regarding a project cannot be resolved in discussions with the proponent (for this study, the proponent is the City of Hamilton), then members of the public, interest groups or technical agencies may request the Minister of the Environment to “bump-up” a project to an individual EA. The Minister of the Environment then decides whether a “bump-up” is appropriate or necessary.

If no “bump-up” requests are outstanding by the completion of the review period, the project is considered to have met the requirements of the Class EA and the proponent may prepare contract drawings, proceed to tender and construct the project.

1.2.2 Municipal Class EA Master Plan Process

The North Glanbrook Industrial Business Park (NGIBP) Transportation Master Plan (TMP) followed the Municipal Class Environmental Assessment (EA) Master Plan process. This process requires, at a minimum, the completion and documentation of Phase 1 and 2 of the Municipal Class EA process.

The Municipal Class EA Master Plan process allows for the development of long range plans which integrate the infrastructure requirements for existing and future land use with environmental assessment planning principles including public and agency consultation.

Upon the completion of a Master Plan, the Master Plan Report is adopted by Council, filed, and made available for public review. Requests for a Part II Order (‘bump-up’ to an Individual EA) are limited to specific projects identified in the Master Plan, not the Master Plan itself. These steps were completed for the NGIBP TMP and no Part II Order requests were received.

The NGIBP TMP recognized that during the development of the business park it may be necessary to amend the TMP for one or more of the following reasons:

- Extend the applicability of the Master Plan beyond five years, if there is a delay in implementing a project;
- Major changes to the original assumptions;
- Major changes to components of the Master Plan; and
- Significant new environmental effects.

The NGIBP TMP indicated that if an Addendum is required, the following process will be followed:

- The City of Hamilton will review the Master Plan to ensure that the project and mitigation measures remain valid within the current planning context;
- The City of Hamilton will document any circumstances necessitating the amendment, the environmental implications, and what can be done to mitigate any negative environmental effects;
- Interested stakeholders and agencies will be notified of any amendments to the Master Plan;
- The City of Hamilton will file a Revised Notice of Completion on the public record and will include a 30-day addendum review period and an explanation of the public's right to request a Part II Order for those elements of the project that are subject to the addendum; and
- If no Part II Order requests are outstanding by the completion of the review period, the addendum is considered to have met the requirements of the Class EA and the proponent may prepare contract drawings, proceed to tender and construct the project.

This TMP Addendum report is following the Addendum process as outlined in the NGIBP TMP (see details above).

1.3 ELEMENTS OF THE TRANSPORTATION MASTER PLAN ADDENDUM

The intent of this Transportation Master Plan (TMP) Addendum is to identify a road network that will support the redevelopment of the study area land in accordance with the current approved land uses for the area.

As discussed in **Section 1.2.1 (Overview of the Municipal Class EA Process)**, there are three project schedules under the Municipal Class EA process with each schedule having different requirements to fulfill the environmental planning process. This TMP Addendum is intended:

- To fulfill the Phases 1 and 2 Class EA requirements for any Schedule B Projects that are identified; and
- To outline additional work that will be required to implement any Schedule C Projects that are identified.

Schedule B projects recommended in this study will be able to proceed to Phase 5 (detail design, construction and operation) subject to the approval of this study in accordance with the requirements of the Class EA.

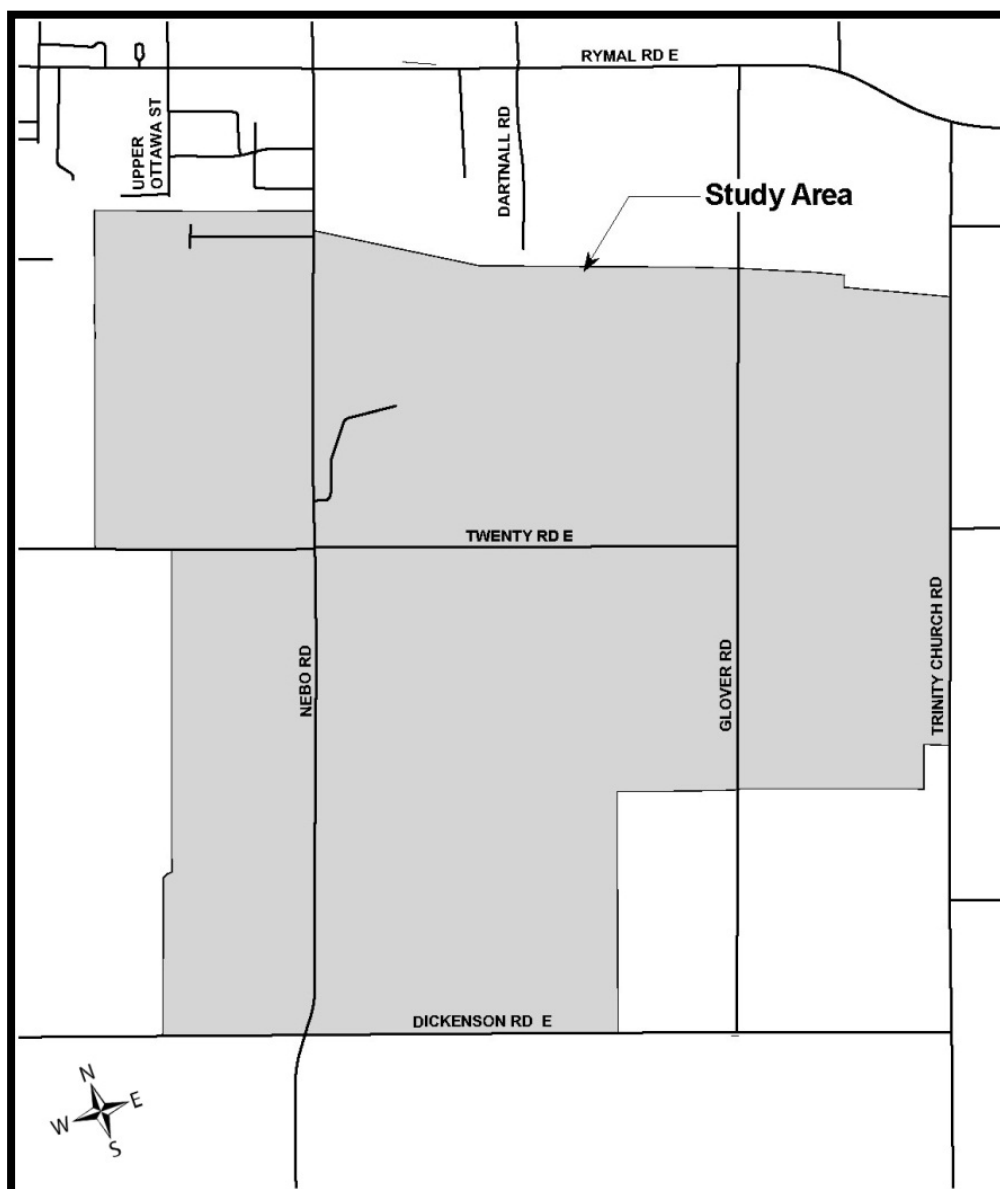
Schedule C projects recommended in this study will require further consultation and preparation of Environmental Study Reports to meet Schedule C requirements. However, this Addendum serves to fulfill the Phase 1 and 2 components of these future projects.

2.0 PLANNING CONTEXT AND PROBLEM / OPPORTUNITY STATEMENT

2.1 STUDY AREA

The primary study area for the Red Hill Business Park South Transportation Master Plan Addendum is the business park boundaries as show in **Exhibit 2.1-1**. This study area matches the study area for the original North Glanbrook Industrial Business Park Transportation Master Plan.

EXHIBIT 2.1-1: STUDY AREA



2.2 PROBLEM / OPPORTUNITY STATEMENT

Within the Red Hill Business Park South (RHBPS) the development of the lands south of Twenty Road between the future Dartnall Road Extension and Glover Road changes the opportunities for Twenty Road to connect the future Trinity Church Road Corridor to the future Dartnall Road Extension.

The form of the industrial development occurring within the RHBPS, formerly the North Glanbrook Industrial Business Park (NGIBP), warrants a review of the:

- The alignment of Twenty Road as identified in the NGIBP Transportation Master Plan (TMP); and
- The location of the intersection of the future Trinity Church Road Corridor, as identified in the Trinity Church Road Corridor Class Environmental Assessment Report, with Twenty Road.

The intent is to ensure that road alignments are proposed which will be in keeping with ongoing and anticipated development within the business park. Based on recent developments within the RHBPS, there appears to be market demand for larger parcels of industrial land. As a result, the road network within the RHBPS should provide the flexibility for larger development.

In addition, feedback from local residents has identified the need to review the function of Glover Road as it transitions from the industrial area into the rural residential area north of Dickenson Road East.

As part of the current TMP Addendum, a traffic analysis update has been completed to reflect recent development planning and road network refinements since the 2006 NGIBP TMP. Findings from this traffic analysis have helped inform the need for any additional road widening requirements and the evaluation of alternatives.

3.0 INVENTORY OF THE EXISTING ENVIRONMENT

As part of this Transportation Master Plan Addendum the existing conditions have been reviewed and updated with particular focus on the areas of roadway alternatives addressed in this report.

3.1 NATURAL ENVIRONMENT

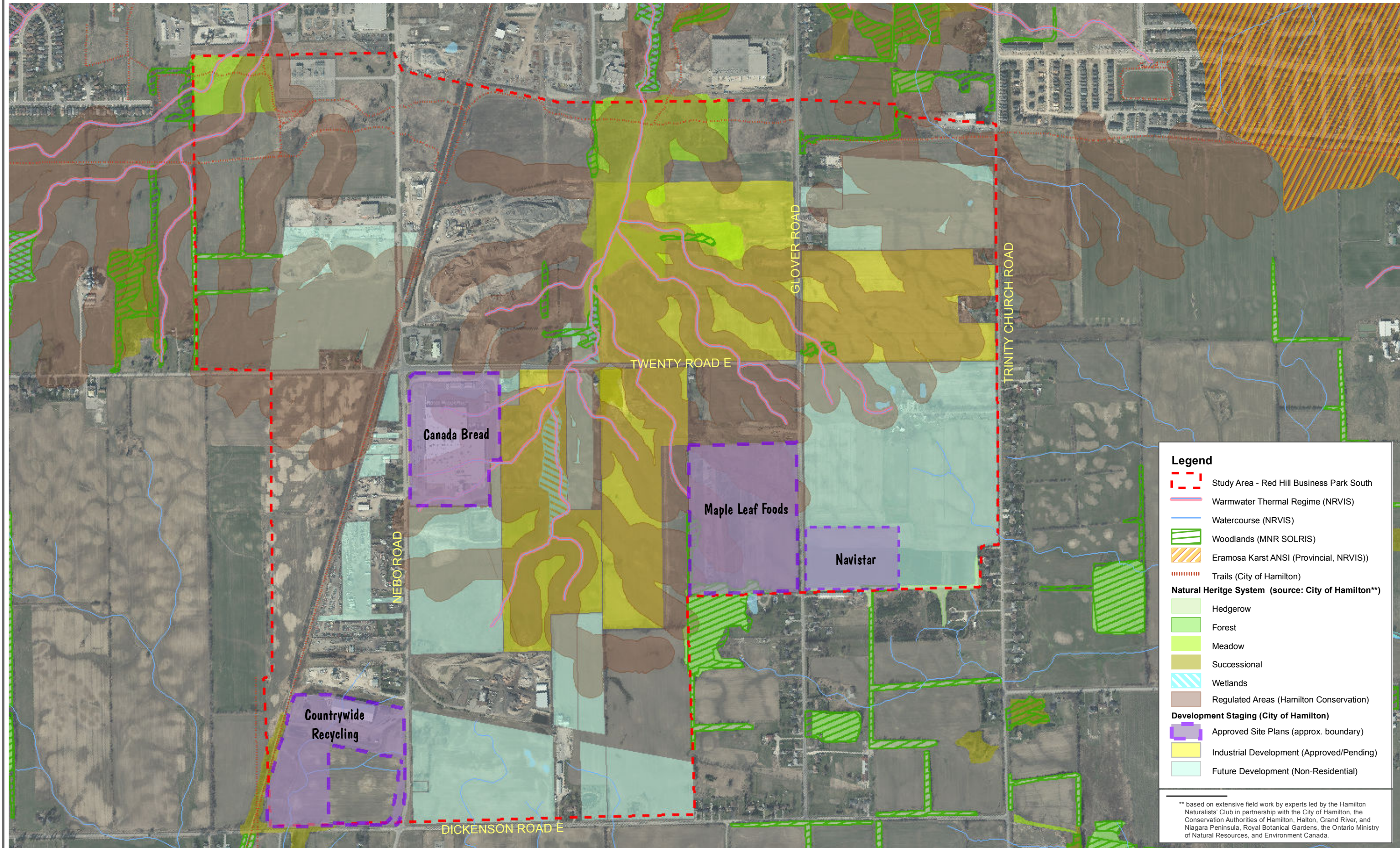
The existing natural environment features have been highly influenced by human activities on the landscape, and there are few ‘natural’ areas remaining. Agricultural lands dominate the landscape with narrow riparian corridors and minor hedgerows traversing the fields. The largest ‘natural’ or ‘semi-natural’ areas are directly associated with Hannon Creek and its tributaries.

There are no provincially designated natural heritage areas within the study area. The following designated areas occur in the surrounding landscape.

- Upper Twenty Mile Creek Provincially Significant Wetland (PSW) Complex occurs approximately 900 m to the south and west.
- Eramosa Karst Provincially Significant Area of Natural and Scientific Interest (ANSI) is located approximately 500 m northeast of the study area.
- The Red Hill Creek Escarpment Valley Environmentally Significant Area, known as Albion Falls Park and Open Space is located north of the study area, along the Niagara Escarpment.

The City of Hamilton¹ has mapped a Natural Heritage System within its jurisdiction which includes forest, meadow, successional, hedgerow and wetland habitat areas. There are representations of each of these features within the study area, as noted on **Exhibit 3.1-1** (Existing Conditions). These features are discussed further in **Section 3.1.2 (Terrestrial Environment)**.

¹ The Natural Heritage System mapping was developed by the former Region of Hamilton-Wentworth and is based on extensive field work by experts led by the Hamilton Naturalists’ Club in partnership with the City of Hamilton, the Conservation Authorities of Hamilton, Halton, Grand River, and Niagara Peninsula, Royal Botanical Gardens, the Ontario Ministry of Natural Resources, and Environment Canada. The Natural Heritage System mapping shown in **Exhibit 3.1-1** was provided by the City in February 2012.



The information presented in the following sections has largely been obtained through secondary sources, supplemented with a reconnaissance-level site visit on May 24, 2012. The primary sources of information are listed below.

1. Hannon Creek Subwatershed: 2005 Spring Inventory: Terrestrial Ecology (Dougan and Associates, in association with Philips Engineering Ltd. 2005)
2. Draft Stream Characterization Report (Totten Sims Hubicki Associates [TSH] 2006)
3. North Glanbrook Industrial Business Park TPM (City of Hamilton, McCormick Rankin Corporation [MRC] and Ecoplans Limited [Ecoplans] 2006)
4. Trinity Church Arterial Corridor Class Environmental Assessment [EA]: Phases 3 & 4 (iTrans Consulting Inc. and the City of Hamilton 2007)
5. Dartnall Rd Extension Class EA ESR (MRC and Ecoplans 2007)
6. Hannon Creek Subwatershed – North Glanbrook Industrial Business Park Master Drainage Plan (TSH & AECOM 2010)
7. Hannon Creek Tributaries and Species at Risk Summary (SNC Lavalin Environment 2011)
8. Ministry of Natural Resources (MNR) Land Information Ontario database (MNR 2012a)

3.1.1 Aquatic Environment

The majority of the study area is within the Hannon Creek subwatershed, part of the Hamilton Conservation Authority's jurisdiction. Hannon Creek is a tributary of Red Hill Creek which eventually drains to Hamilton Harbour (City of Hamilton et al. 2006). Within the study area, most of the Hannon Creek tributaries are intermittent and all are classified as warm water (MNR 2012a) or are ephemeral ploughed swales (and not classified by MNR). The south west and south east corners of the study area fall within the Twenty Mile Creek subwatershed within the Niagara Peninsula Conservation Authority (NPCA) jurisdiction (NPCA 2012). These tributaries flow south towards Twenty Mile Creek.

The Hannon Creek Subwatershed - North Glanbrook Industrial Business Park Master Drainage Plan (TSH and AECOM 2010) identifies different constraint levels for each of the tributaries identified within the study area, ranging from Low to High (see map provided in **Appendix E**). This classification system was applied by TSH and considered multiple factors including environmental, geomorphological, hydrologic and hydrogeologic. The upper reaches are generally considered low constraint (many of these are ploughed through), the middle reaches are medium constraint and the main channel is high constraint. Generally it is recommended that high constraint areas are maintained in form and function; however, it is noted that the high constraint reach within the study area has potential to be relocated. Details about each of the stream reaches within the study area can be found in the Hannon Creek Subwatershed - North Glanbrook Industrial Business Park Master Drainage Plan TPM (TSH and AECOM 2010) and corresponding map is provided in **Appendix E**.

In the vicinity of the Twenty Road East and Trinity Church Road alternatives (east of Glover Road), the tributaries are all considered low constraint. These reaches were reviewed

in the field with Hamilton Conservation staff and most were noted to be within a cultivated corn field and were ploughed ephemeral features with no channel definition. These reaches do not provide direct fish habitat, but do contribute flow to downstream reaches during spring run-off and periods of significant rainfall. The tributary immediately east of Glover Road flows through a meadow marsh community and is relatively more defined than the other features further east. This tributary will be further assessed during Phase 3 of the Schedule C Class EA for the Twenty Road extension (see **Section 7.1 [Elements Requiring Further EA Approvals]**).

According to TSH, only Brook Stickleback (*Culaea inconstans*) and Goldfish (*Carassius auratus*) have been recorded in Hannon Creek since 1991 (TSH and AECOM 2010). It was concluded by C. Portt and Associates that all native fish species, except Brook Stickleback have been extirpated from the Red Hill Creek Watershed upstream of Albion Falls (TSH and AECOM 2010). The MNR noted that they do not have any fisheries information for the study area (MNR 2012b).

3.1.2 Terrestrial Environment

Vegetation

General vegetation communities (e.g. 'forest', 'wetland', 'meadow', 'successional', 'hedgerow') have been mapped across the City of Hamilton based on extensive field work by experts led by the Hamilton Naturalists' Club. These communities have been integrated into a 'Natural Heritage System' (NHS) for the City of Hamilton. These NHS vegetation communities are mapped on **Exhibit 3.1-1**. Much of the NHS has been incorporated into the Urban Hamilton Official Plan Schedule B - 'Natural Heritage System'. Wetlands are mapped as part of the 'Core Areas' while most of the successional, hedgerow and meadow habitats have been incorporated into the 'Linkages' layer.

The native vascular plant flora of the Hannon Creek Subwatershed is representative of the transition zone between the Great Lakes Forest Region and the Carolinian zone but the subwatershed generally does not support a diverse assemblage of vascular plant species due to its high levels of urbanization (Dougan and Associates 2005).

Within the Red Hill Business Park South study area, terrestrial habitat is primarily limited to cultivated fields and other highly modified vegetation communities (e.g. cultural meadow and cultural thickets). Two small wetland features (just north and south of Twenty Road East) have been mapped as part of the NHS (see **Exhibit 3.1-1**) and included as Key Natural Heritage and Key Hydrologic Feature Wetlands on Schedule B-4 of the Urban Hamilton Official Plan. An additional meadow marsh/cultural meadow/cultural thicket community (not currently mapped as part of the NHS) occurs immediately east of the current terminus of Twenty Road East. According to Schedule B-2 of the Urban Hamilton Official Plan, there are no Significant Woodlands mapped within the study area.

Within the vicinity of the Twenty Road East and Trinity Church Road alternatives outlined in **Section 4.2.1 (Twenty Road Alternatives)**, there are only a few semi-natural features

remaining on the landscape. The existing Twenty Road East alignment borders a wheat field to the north and roadside cultural meadow with a row of planted trees to the south. Eastwards from the current road terminus, there is a small cultural meadow / cultural thicket / meadow marsh mosaic community that surrounds a tributary of Hannon Creek. This is the only 'semi-natural' habitat in the vicinity of the alternatives. East of the cultural meadow / cultural thicket / meadow marsh mosaic is a cultivated field (planted in corn in 2012) with a minor, shrub-dominated hedgerow to the south. From this point north along the Trinity Church Arterial Road corridor are cultivated fields and 2 minor hedgerows.

Wildlife

Wildlife data from the study area includes data summarized in the Hannon Creek Subwatershed: Spring Inventory 2005 (Dougan and Associates 2005) and the Natural Heritage Report for Trinity Church Arterial Corridor Class EA (LGL 2007). Both studies included land beyond the current study area boundaries and as a result data was interpreted with caution.

Herpetofauna observed in the study area and vicinity include: American Toad (*Bufo americanus*), Green Frog (*Rana clamitans*), Northern Leopard Frog (*Rana pipiens*), Western Chorus Frog, Carolinian population (*Pseudacris triseriata*), Spring Peeper (*Pseudacris crucifer*), Wood Frog (*Rana sylvatica*), Gray Treefrog (*Hyla versicolor*), Eastern Gartersnake (*Thamnophis sirtalis*) and Dekay's Brown Snake (*Storeria dekayi*). All of these species are common and expected for the study area vicinity, but may not all occur within the study area itself.

Dougan and Associates (2005) recorded 56 breeding birds during their spring 2005 inventories within the Hannon Creek Subwatershed. LGL recorded 37 species during their 2006 surveys of a much smaller area (LGL 2007). Of note were records of Eastern Meadowlark (*Sturnella magna*), Barn Swallow (*Hirundo rustica*) and Bobolink (*Dolichonyx oryzivorus*), three bird species that have recently been designated species at risk both federally and provincially (See **Section 3.1.3 [Species at Risk]** for further discussion).

Mammal records for the study area and vicinity include a suite of common species tolerant of semi-urban and/or rural habitats including Virginia Opossum (*Didelphis virginiana*), Eastern Cottontail (*Sylvilagus floridanus*), Eastern Chipmunk (*Tamias striatus*), Gray Squirrel (*Sciurus carolinensis*), Groundhog (*Marmota monax*), Meadow Vole (*Microtus pennsylvanicus*), Coyote (*Canis latrans*), Red Fox (*Vulpes vulpes*), Striped Skunk (*Mephitis mephitis*), White-tailed Deer (*Odocoileus virginianus*) and Raccoon (*Procyon lotor*) (LGL 2007).

3.1.3 Species at Risk

Although the study area has been highly modified and degraded by human impact on the natural environment, potential habitat for several species at risk (SAR) remains. The Ministry of Natural Resources (MNR) provided a SAR list for Hamilton (i.e. city wide and not limited to the study area) that included a total of 51 species: 1 amphibian, 23 birds, 3 fish, 2 insects, 2 mammals, 2 molluscs, 11 vascular plant species and 7 reptiles. The Natural Heritage Information Centre (NHIC) Database was also reviewed for the study area. Of the 19

records returned for the study area (including SAR and provincially rare species), 15 were considered historical or extirpated, with most of these records being greater than 60 years old. Only 1 relatively recent SAR record was returned: Green Dragon (Flora) which was observed in 1991. There is no suitable habitat for Green Dragon in the vicinity of the of the road alternatives addressed in this report

The Hamilton SAR list provided by MNR was reviewed to assess the potential for species to be using habitat in the vicinity of the road alternatives. That species review was documented in a memo which was provided to MNR and is on file at the City of Hamilton. Of the 51 species reviewed, 44 were excluded from further assessment primarily based on habitat preferences and the lack of such habitat in the vicinity of the road alternatives. NHIC records are also considered, where relevant.

The remaining seven species could potentially occur within the vicinity of the proposed road alignments and therefore could potentially be affected. These species are addressed in more detail below. Due to a potential site record in 2005 American Badger is also discussed, but is not considered one of the seven species that could potentially occur in the vicinity of the road alternatives. Considerable search effort and correspondence with the MNR has been ongoing over the past seven years and the MNR has concurred with the conclusion that the potential for a badger population to exist in the vicinity is limited.

It is important to note that this is a preliminary screening and that further field work and habitat assessment is required during future design phases to refine this preliminary analysis.

Barn Swallow

Barn Swallow (*Hirundo rustica*) is federally and provincially threatened but does not have any status under the federal *Species at Risk Act*. It is protected under the Provincial *Endangered Species Act* (ESA 2007). Before European colonization, Barn Swallows nested mostly in caves, holes, crevices and ledges in cliff faces. Following European settlement, Barn Swallows shifted largely to nesting in and on artificial structures, including barns and other outbuildings, garages, houses, bridges and road culverts. Barn Swallows prefer various types of open habitats for foraging, including grassy fields, pastures, various agricultural crops, lake and river shorelines, cleared rights-of-way, cottage areas and farmyards, islands and wetlands.

Barn Swallow was observed in 2006 along Trinity Church Road (LGL 2007) and was also confirmed breeding just north of the study area in 2005 and observed again in 2010 (Dougan and Associates 2011). Although no suitable nesting habitats occur in the vicinity of the road alternatives addressed in this report, Barn Swallow is known from the vicinity and likely forage over the area generally.

Bobolink

Bobolink (*Dolichonyx oryzivorus*) is federally and provincially threatened but does not have any status under SARA. It is protected under the Provincial ESA (2007). As a newly listed species, the Bobolink currently receives species and habitat protection under the ESA. Bobolink habitat primarily includes grassland, hayfields, and lightly grazed pasture; however, the species has also adapted to nesting in winter wheat fields. Bobolink prefers fields with high percentage of grass cover and moderate percent of forb cover and is not attracted to fields with woody vegetation. This species does not nest in woodland or shrubby thicket. Ideal habitat size varies widely and is likely affected by available habitat in a region. Individual territory size can range from 0.45-2.0 ha and may vary widely in different regions. Populations may require approximately 10-30 ha (Herkert 1991).

Bobolink has been recorded by others in the general study area vicinity (LGL 2007). Preferred habitat (i.e. hayfields and lightly grazed pasture) does not exist in the vicinity of the road alternatives addressed in this report; however, winter wheat fields do occur north of the existing Twenty Road East and there is some **potential** for Bobolink to use this habitat.

Eastern Meadowlark

Eastern Meadowlark (*Sturnella magna*) is federally and provincially threatened but does not have any status under SARA. It is protected under the Provincial ESA (2007). Eastern Meadowlarks prefer “grassland habitat including native prairies and savannahs, as well as non-native pastures, hayfields and weedy meadows, herbaceous fencerows and airfields” (COSEWIC 2011, p.iv).

Breeding evidence for Eastern Meadowlark was noted in 2006 within cultural thicket and cultural meadow habitats within the Trinity Church Arterial Corridor Class EA study area (LGL 2007). This species was also observed just north of the current study area in 2005 (Dougan and Associates 2011). There is some **limited potential** for Eastern Meadowlark to use the cultural meadow vegetation just east of the current terminus of Twenty Road East. However, this habitat is limited in size and has limited connectivity to larger open (not cultivated) habitat blocks which make the habitat less suitable.

Yellow-breasted Chat

Yellow-breasted Chat is federally endangered and provincially designated Special Concern species and is listed on Schedule 1 of SARA. Preferred habitat includes thickets, tall tangles of shrubbery beside streams, ponds; overgrown bushy clearings with deciduous thickets; nests above ground in bush, vines etc. (MNR 2000).

The NHIC database does not have any records of Yellow-breasted Chat in the study area. There is some **very limited potential** for this species to occur in the habitat mosaic at the current terminus of Twenty Road East. Habitat in the area would be considered marginal as

there is limited connectivity to larger habitat blocks and there are high levels of disturbance from the existing road network (e.g. noise), which make the habitat less suitable.

Milksnake

Milksnake is a federally and provincially designated Special Concern species and is listed on Schedule 1 of SARA. Habitat for Milksnake includes farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods. This species often hides under logs, stones, or boards or in outbuildings and often uses communal nest sites (MNR 2000).

The NHIC does not have any records of this species within the study area, but it is known to occur within the Hamilton area (MNR 2012). Milksnakes are most active at night and are rarely encountered during daylight hours. There is some **limited potential** that Milksnake could be utilizing habitat within the vicinity, particularly along hedgerows and in the cultural meadow / meadow marsh habitat mosaic at the current terminus of Twenty Road East.

Eastern Ribbonsnake

Eastern Ribbonsnake is a federally and provincially designated Special Concern species and is listed on Schedule 1 of SARA. Habitat for Eastern Ribbonsnake includes sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams; and Eastern Ribbonsnake hibernates in groups (MNR 2000). The Eastern Ribbonsnake is semi-aquatic and most frequently found along wetland edges. Quiet, shallow water with low surrounding cover is preferred, although areas with good exposure to sunlight are also required. Gravid females may move away from water before nesting, as females and juveniles are occasionally found in upland areas (Smith 2002).

The NHIC does not have any records of this species within the study area, but it is known to occur within the Hamilton area (MNR 2012). There is some **very limited potential** that Eastern Ribbonsnake could be utilizing the habitat mosaic at the current terminus of Twenty Road East. However, this potential is limited by the fact the watercourse is ephemeral and the habitat likely does not provide sufficient wetland/aquatic habitat for this semi-aquatic species.

Monarch

Monarch is a federally and provincially designated Special Concern species and is listed on Schedule 1 of SARA. Monarchs in Canada exist primarily wherever milkweed (*Asclepius* sp.) and wildflowers (such as Goldenrod [*Solidago* sp.], asters [*Aster* sp.], and Purple Loosestrife [*Lythrum salicaria*]) exist. This includes abandoned farmland, along roadsides, and other open spaces where these plants grow. Monarch wintering habitats include Eucalyptus trees along the Californian coast, and the Oyamel Fir forest in central Mexico (SARA 2012).

In Ontario, Monarchs are widespread and relatively common, especially in southern Ontario where there is much open land. The most sensitive stage of its annual cycle is overwintering and it is believed that this species is at risk due to loss of habitat in the Oyamel Fir forest where 90% of the population overwinters (COSEWIC 2010).

Monarch was observed in the study area in September 2011 (SNC Lavalin Environment 2011) and would be expected to occur wherever suitable habitat patches are found. Monarch is identified as Special Concern (COSEWIC and MNR) because of reductions in the quality/quantity of overwintering habitat in Mexico and Central America, not because of local (Ontario) site conditions.

American Badger

American Badgers are federally and provincially endangered and are listed on Schedule 1 of SARA and protected under the Provincial ESA (2007). Although they were historically associated with large tracts of tallgrass prairie and oak savannah, today badgers are also associated with “old fields, pastureland and the edges of agricultural fields, orchards, scrubland, wooded ravines and woodlots” (Ontario American Badger Recovery Team 2010, p.7). American Badgers use their long claws for digging and burrowing and require sandy or other friable soils to build dens for resting, rearing young and overwintering (Ontario American Badger Recovery Team 2010).

A potential sight record of an American Badger was recorded by Dougan and Associates staff on April 21, 2005. Further field work, soil analysis and correspondence with the MNR in 2007 by Natural Resource Solutions Inc. (NRSI) concluded that “the potential for a badger population in the local vicinity is limited, based on lack of suitable soils and prey, but it is possible that they do roam through the area on occasion in search of food” (NRSI 2007, p.2). NRSI also recommended that further field study be undertaken at the draft plan stage (2007). This conclusion was accepted by the MNR (MNR 2007) and the HCA (HCA 2007). Furthermore, Dougan and Associates conducted two additional intensive surveys for Badgers and badger signs in April and May of 2010 for the Dartnall Road and Rymal Road Class EA (just north of the current study area) (2011). No Badgers or badger sign were observed during these surveys, further supporting the conclusion that American Badgers do not exist in the study area at present. Areas that will be affected by the road improvements will be reviewed for evidence of American Badger activity (e.g. burrows) during future design phases. It is expected that surrounding lands will be screened for SAR through studies in association with development plans.

3.1.4 Groundwater

There are karst features in the Hannon Creek subwatershed. These features are in the form of “fissures” in the ground that provide drainage to the groundwater system. Most of the significant karst features are on the west side of the watershed (see **Appendix E**) and there are no observed or expected karsts in the vicinity of the road alternatives addressed in this report (TSH and AECOM 2010).

3.2 SOCIAL-ECONOMIC ENVIRONMENT

3.2.1 Current Land Use

Development of the business park is ongoing and recently there has been a notable interest and action for development opportunities within the business park. The existing development remains relatively sparse and is a mix of industrial, agricultural and residential land uses although all land within the park is currently zoned as industrial or commercial. Existing industry is predominately outside the study area north of the hydro corridor adjacent to Nebo Road, Rymal Road, and Dartnall Road.

Within the business park the majority of industry and business is located along Nebo Road with a mix of industrial/commercial and residential land use on the west side south of Twenty Road.

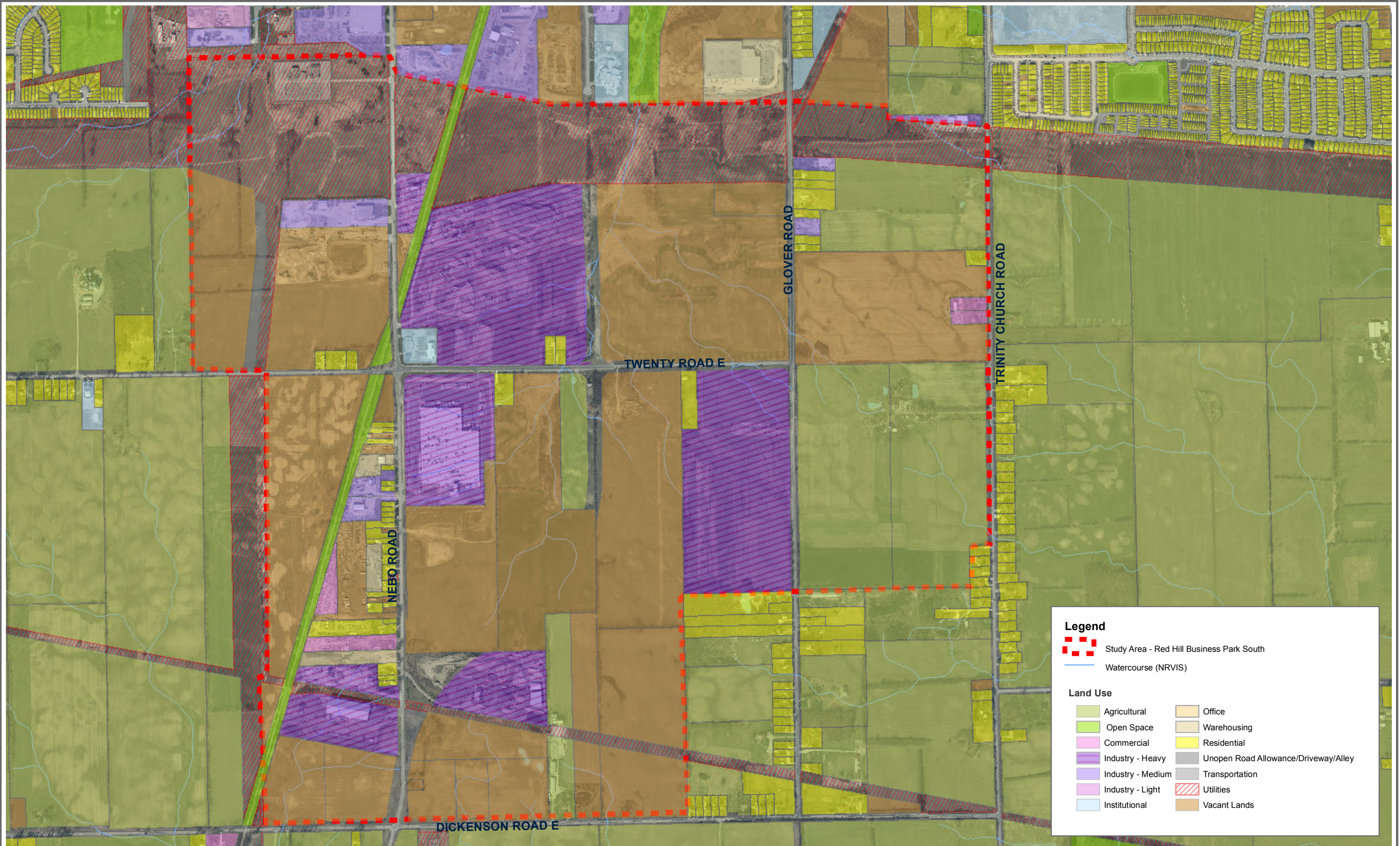
Between Nebo Road and Glover Road is a mix of agricultural and residential land uses. There is one institutional property and one relatively large industrial property (Lafarge Canada Inc.) at the northeast corner of Twenty Road and Nebo Road. Notable developments since 2006, as shown on **Exhibit 3.1-1**, include:

- Canada Bread (opened in 2011): 385,000 square foot bakery.
- Maple Leaf Foods (under construction, scheduled to open in December 2013): 500,000 square foot food processing operation.
- Navistar (under construction): 250,000 square foot automotive parts distribution centre located south of Twenty Road and east of Glover Road bordering the south boundary of the business park.

Between Glover Road and Trinity Church Road existing land use is similar mix of agricultural and residential, including a residential area along Glover Road north of Twenty Road, however there are residential clusters along both Glover Road and Trinity Church Road from the southern limits of the business park south to Dickenson Road.

The majority of active agricultural lands within the business park are owned by land developers and are being farmed by area farmers under lease agreements. Within the business park the City of Hamilton currently owns nine parcels of land.

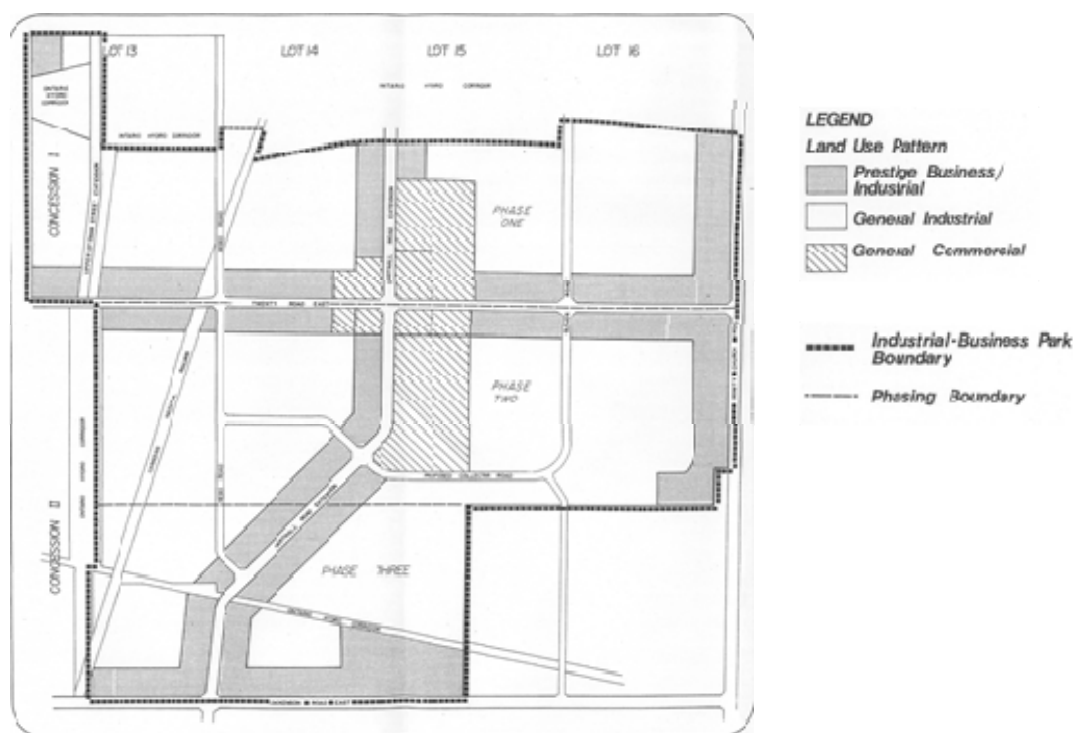
Exhibit 3.2.1-1, illustrates the existing land uses within the business park.



3.2.2 Future Land Use

The Red Hill Business Park South has an approved Secondary Plan, as shown in **Exhibit 3.2.2-1**, which allows for redevelopment of the area for general industrial, prestige industrial and general commercial purposes. The Secondary Plan is subject to a review and potential changes following any changes to the road network resulting from the original Transportation Master Plan (TMP) and this current TMP Addendum. It is noteworthy that this Secondary Plan has been included as in the Urban Hamilton Official Plan (appealed to the Ontario Municipal Board and not currently in effect).

EXHIBIT 3.2.2-1: SECONDARY PLAN



Access to the park and servicing had been a critical hurdle to development and it was anticipated that development would start to progress once those factors were addressed. With the completion of the Red Hill Valley Parkway, the Red Hill Business Park South is now five minutes from the Queen Elizabeth Way and seven minutes from Highway 403 in Ancaster (City of Hamilton 2012a). In addition, City of Hamilton is in the process of extending services to the business park. There has been a notable uptake in development interest for the business park including the three notable developments (Canada Bread, Maple Leaf Foods, Navistar) as discussed in **Section 3.2.1 (Current Land Use)**.

As of December 2012, 43% of the business park lands are “shovel ready” for development (City of Hamilton 2012b). As a result, additional development is anticipated.

3.2.3 Heritage and Archaeology

No cultural heritage resources have been identified within the business park (City of Hamilton 2011).

A Stage 1 Archaeological Assessment was completed in 2006 (Archaeological Services Inc. 2006) which identified archaeological potential over most of the business park. There is a potential for historic sites following historic transportation routes including Twenty Road, and Nebo Road within the business park. There is also potential for pre-contact sites over most of the business park lands.

It is noteworthy that Stage 2 Archaeological Assessment will be completed prior to construction for lands with archaeological potential. If necessary, further assessment will be completed based on findings from Stage 2.

3.2.4 Utilities

There are two Ontario Hydro corridors within the business park. The larger of the corridors extends along the north boundary of the business park parallel to Rymal Road and is generally a green space with hydro towers running through it. The second smaller hydro corridor is located in the south section of the business park, north of Dickenson Road and runs on a diagonal from east to west, crossing over the Rail Trail. Lands within these corridors are not planned to be developed. The hydro corridors are depicted in **Exhibit 3.1-1**.

Three pipelines are located within the business park. Running along the north boundary of the northern hydro corridor is the TransCanada Pipe Line (natural gas). The southern boundary of the northern hydro corridor is the location of two Trans-Northern Pipelines (oil). The northern hydro corridor is depicted in **Exhibit 3.1-1**.

3.3 TRANSPORTATION NETWORK

3.3.1 Existing Road Network

The existing road network within and adjacent to the Red Hill Business Park South is generally comprised of two lane and four lane arterial and collector roadways. The roads, listed below, all provide direct or indirect access to the business park.

Two Lane Roads

East-West:

- Stone Church Road [arterial];
- Rymal Road [arterial];
- Twenty Road [collector];
- Golf Club Road [collector]; and
- Dickenson Road [collector].

North-South:

- Miles Road [arterial];
- Nebo Road (Rymal Road to Dickenson Road) [collector];
- Dartnall Road (Lincoln Alexander Parkway to Rymal Road to south terminus) [arterial];
- Glover Road [collector];
- Pritchard Road [collector];
- Trinity Church Road [collector]; and
- Upper Mount Albion Road [arterial].

Four Lane Roads

East-west

- Lincoln Alexander Parkway (to Mud Street Extension and the Red Hill Valley Parkway) [arterial]; and
- Mud Street [arterial].

North South

- Upper Gage Avenue [collector];
- Upper Ottawa Street [arterial]; and
- Nebo Road (Stone Church Road to Rymal Road) [collector].

The existing truck route network in the area consists of the roads listed below (City of Hamilton 2010).

- Rymal Road;
- Dartnall Road - Lincoln Alexander Parkway to Rymal Road;
- Upper Ottawa Street - full time route between Stone Church Road and Kilbride Road; part time route between Mohawk Road and Stone Church Road;
- Kilbride Road - Upper Ottawa Street to Nebo Road;
- Upper Gage Avenue;
- Upper Centennial Parkway;
- Pritchard Road - Stone Church Road to Rymal Road;
- Stone Church Road - Upper Gage Street to Red Hill Valley Parkway;
- Mud Street;
- Red Hill Valley Parkway; and
- Lincoln Alexander Parkway.

Currently there are no designated truck routes within the Red Hill Business Park South.

3.3.2 Rail Trail

A section of the Trans Canada Rail Trail extends through the study area. Called the “Rail Trail”, it lies within an abandoned rail corridor extending generally in a southwest-northeast direction cutting diagonally through the park from a point 400m west of Nebo Road at Dickenson Road, crossing Twenty Road at Nebo Road and terminating at Stone Church Road just west of Dartnall Road. This trail is shown on **Exhibit 3.1-1**.

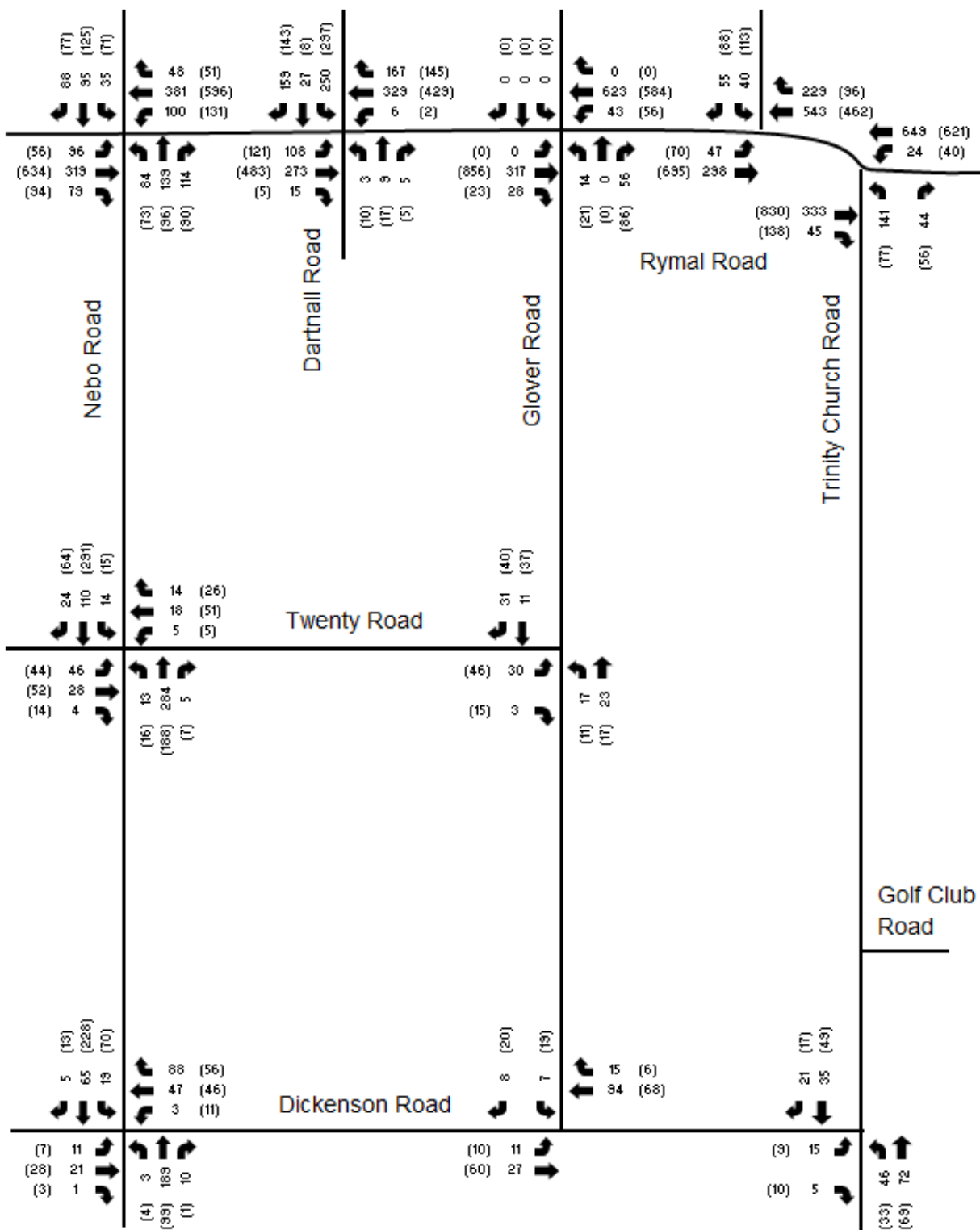
3.3.3 Existing Traffic Conditions

An updated traffic analysis has been completed in support of this Transportation Master Plan Addendum. A memo outlining the updated traffic analysis is provided in **Appendix A**.

The 2006 Transportation Master Plan (TMP) presented traffic growth estimated based on an averaged traffic growth rate of 0.83% annually to 2031. A growth rate of 1% per year was applied as part of the updated traffic analysis carried out in support of the TMP Addendum based on direction provided by the City of Hamilton. This rate of growth was applied to the updated existing study area turning movement counts as shown in **Exhibit 3.3.3-1**.

In response to feedback from the community, additional traffic counts were completed along Glover Road in September 2012. No notable differences in the AM and PM Peak traffic volumes or the 24 Hour traffic volume were observed compared to the existing traffic information presented in **Exhibit 3.3.3-1**. The findings of the additional traffic count are consistent with the results of traffic counts conducted previously for Glover Road.

EXHIBIT 3.3.3-1: EXISTING AM (PM) PEAK HOUR TRAFFIC VOLUMES – YEAR: 2012



4.0 TRANSPORTATION ALTERNATIVES

4.1 RATIONALE FOR ROAD INFRASTRUCTURE IMPROVEMENTS

As noted in **Section 2.2 (Problem / Opportunity Statement)** within the Red Hill Business Park South (RHBPS) the development of the lands south of Twenty Road between the future Dartnall Road Extension and Glover Road changes the opportunities for Twenty Road to connect the future Trinity Church Road Corridor to the future Dartnall Road Extension.

The form of the industrial development occurring within the RHBPS, formerly the North Glanbrook Industrial Business Park (NGIBP), warrants a review of the:

- The alignment of Twenty Road as identified in the NGIBP Transportation Master Plan (TMP); and
- The location of the intersection of the future Trinity Church Road Corridor, as identified in the Trinity Church Road Corridor Class Environmental Assessment Report, with Twenty Road.

In addition, feedback from local residents has identified the need to review the function of Glover Road as it transitions from the industrial area into the rural residential area north of Dickenson Road East.

4.1.1 Future Traffic and Network Requirements

As part of the review of the transportation network, a traffic analysis was completed to reflect recent development planning and road network refinements since 2006. Planned network improvements were incorporated to reflect future network capacity to 2021 and 2031 and trip tables were updated to reflect planned development potential in the Red Hill Business Park South based on these same planning horizons. A memo outlining the updated traffic analysis is provided in **Appendix A**.

The updated traffic analysis determined that:

- No additional road capacity will be required beyond the existing and approved road network; and
- One east-west collector road (e.g. two-lane Twenty Road) would be sufficient to accommodate traffic through the business park.

The traffic analysis also considered the potential traffic capacity impacts associated with the potential closure of Glover Road north of Dickenson Road East. It was found that traffic capacity would not be a concern should Glover Road be closed north of Dickenson Road East. As a result, traffic capacity is not decision relevant for the evaluation of Glover Road alternatives; however, there are other traffic related considerations to be assessed. Please refer to **Section 4.3.3 (Glover Road: Assessment and Evaluation of Alternatives)** for information related to the assessment and evaluation of Glover Road alternatives.

4.1.2 Network Requirements within the Study Area

The traffic analysis undertaken based on the updated intersection turning movement counts, land use assumptions and study area trip generation confirms that two additional lanes of capacity will be required to accommodate demand south of Rymal Road between and inclusive of Nebo Road and Trinity Church Road. While this finding remains unchanged from that identified by the 2006 Transportation Master Plan (TMP), the updated analysis also confirms that the corresponding existing available capacity can adequately accommodate traffic to 2021.

The improved Trinity Church Road corridor identified by the 2006 TMP extended southerly from the proposed Twenty Road extension and then westerly to connect with the Dartnall Road extension, effectively providing a second east/west access between the business park and the improved north-south arterial roadway. Since the completion of the TMP, the Class Environmental Assessment for the Trinity Church Arterial Road Corridor resulted in an approved alignment that runs parallel to and west of Trinity Church Road and terminates at the Twenty Road East extension (referred to as the proposed north collector in the Trinity Church Arterial Corridor Class Environmental Assessment). This is reflected in **Exhibit 1.1.1-1 (Approved Transportation Network)**. Accordingly, there is only a single east-west connection between Rymal Road and Dickenson Road East rather than two as identified by the 2006 TMP. Despite the reduction in east-west capacity, the original traffic analysis carried out as part of the 2006 TMP considered only a single roadway connection to/from the east of the business park. The previously forecast demand on this single connection, the easterly extension of Twenty Road East to Trinity Church Road, was within the available capacity of a two-lane roadway and based on the updated traffic analysis as part of the TMP Addendum, a single two-lane roadway connection to the Trinity Church Arterial Road Corridor continues to be sufficient. Accordingly, based on the currently approved alignment for the Trinity Church Arterial Road Corridor, a single east-west connection via the easterly extension of Twenty Road East provides sufficient network capacity in this direction.

4.1.3 Network Requirements External to the Study Area

The 2006 TMP identified four external network upgrades related to roads and corridors that extend outside of the business park and connect it to other major transportation facilities (i.e. Lincoln Alexander Parkway and Red Hill Valley Parkway). It was noted that those external network upgrades must first be studied to fulfill Class Environmental Assessment requirements prior to implementation and that timing for implementation will need to be considered in conjunction with the business park road improvements and other external growth initiatives (e.g. Rymal Road Planning Area [ROPA 9], airport lands, etc.). **Exhibit 4.1.3-1** outlines the external network upgrades and their current status.

EXHIBIT 4.1.3-1: STATUS OF NETWORK REQUIREMENTS EXTERNAL TO THE STUDY AREA

External Network Requirement (as identified in the 2006 TMP)	Status
Widening of Dartnall Road to four lanes north of Rymal Road	Scheduled for construction in 5+ years.
Widening of Rymal Road between Upper Gage Avenue and Upper Centennial Parkway (Highway 20)	Widening from Dartnall Road to Fletcher Road scheduled for construction in 2014.
An east-west connection between the south end of the business park and the airport (potentially along Dickenson Road or Airport Road)	This is a long-term project - planning studies to be initiated.
An extension of Trinity Church Road north of Rymal Road to the Red Hill Valley Parkway ¹	Scheduled for construction in 0-5 years.

4.2 ALTERNATIVE SOLUTIONS

4.2.1 Twenty Road Alternatives

The transportation network identified in the 2006 Transportation Master Plan (TMP) identifies two east-west roads – Twenty Road from the future Dartnall Road Extension to Trinity Church Road and an arterial road south of Twenty Road between the Dartnall Road Extension and Trinity Church Road.

It is noteworthy that an arterial road south of Twenty Road is not feasible as there is an ongoing development in that location. Given the land use development within the study area, two alternatives have been identified:

Twenty Road: Alternative 1 – Alignment as recommended in the 2006 TMP

- Alignment of Twenty Road to swing to the north between the future Dartnall Road Extension and Glover Road and then continue on a straight line to connect with the Trinity Church Arterial Road Corridor.

¹ The need for this extension was established as part of the Rymal Road Planning Area (ROPA 9) Class Environmental Assessment.

Twenty Road: Alternative 2 – Extend existing road allowance directly east to the future Trinity Church Arterial Road Corridor

- Alignment of Twenty Road to extend directly east from the existing right-of-way and intersect with a southerly extension of the Trinity Church Arterial Road Corridor.

The two alternatives are shown in **Exhibits 4.2.1-1 and 4.2.1-2**.

EXHIBIT 4.2.1-1: TWENTY ROAD ALTERNATIVE 1

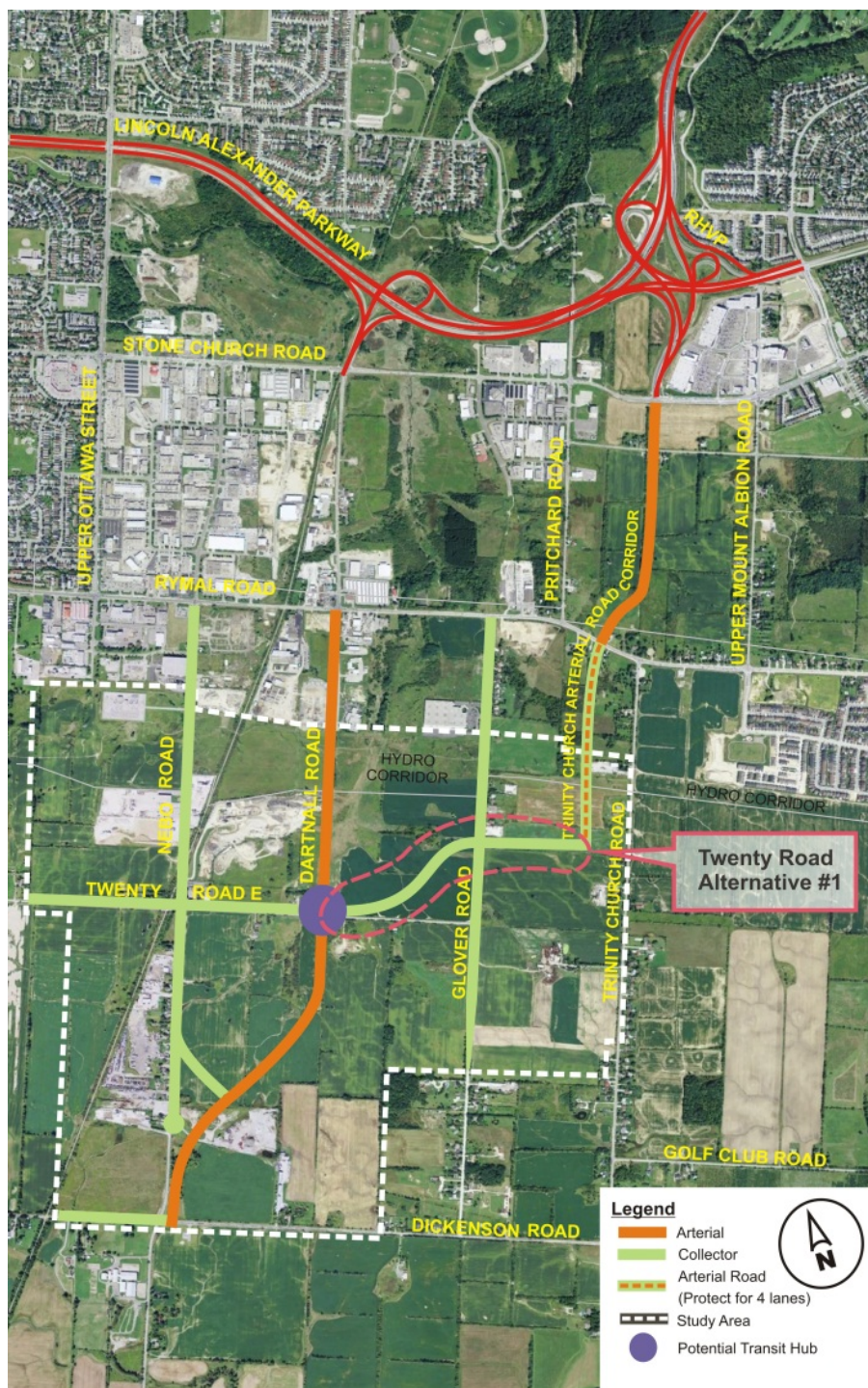
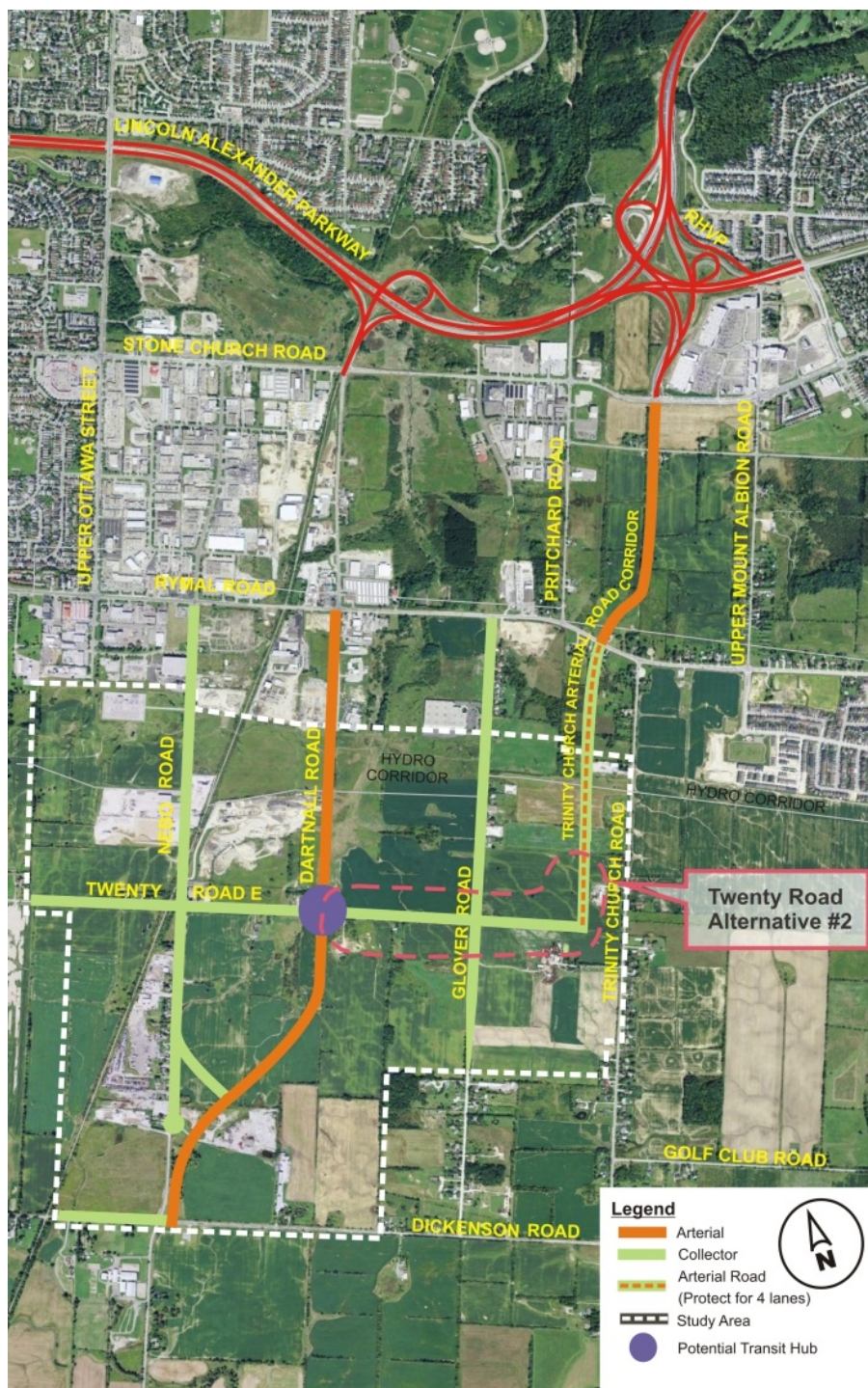


EXHIBIT 4.2.1-2: TWENTY ROAD ALTERNATIVE 2



The Trinity Church Arterial Road Corridor Class Environmental Assessment identified the possibility of a roundabout at the intersection of Twenty Road and the Trinity Church Arterial Road Corridor. As part of the current TMP Addendum, the City of Hamilton's roundabout screening criteria have been reviewed to screen the feasibility of a roundabout at this intersection. That review is outlined in **Section 4.3.2.1 (Twenty Road and Trinity Church Arterial Road Corridor Intersection – Roundabout Screening)**.

4.2.2 Glover Road Alternatives

Glover Road will transition (narrow) from the industrial area into the rural residential area and with its reconstruction through the industrial area the pavement will narrow slightly as it changes from an urban section with curb and gutter to a rural section with gravel shoulder and ditches. This may discourage use of the road by all but local traffic; however, local residents have expressed concern regarding traffic related impacts associated with the development of the business park. As a result, alternatives have been developed to address those concerns. The following three alternatives have been identified:

Glover Road: Alternative 1 – Do nothing – with appropriate traffic signs

- No change to the existing condition traffic operations on Glover Road north of Dickenson Road East.
- Addition of appropriately placed traffic signs to discourage truck traffic within the Glover Road residential area.

Glover Road: Alternative 2 – Cul-de-sacs on Glover Road north of Dickenson Road East

- Creation of cul-de-sacs between the business park and Glover Road residential area.

Glover Road: Alternative 3 – Traffic island on Glover Road north of Dickenson Road East – with appropriate traffic signs

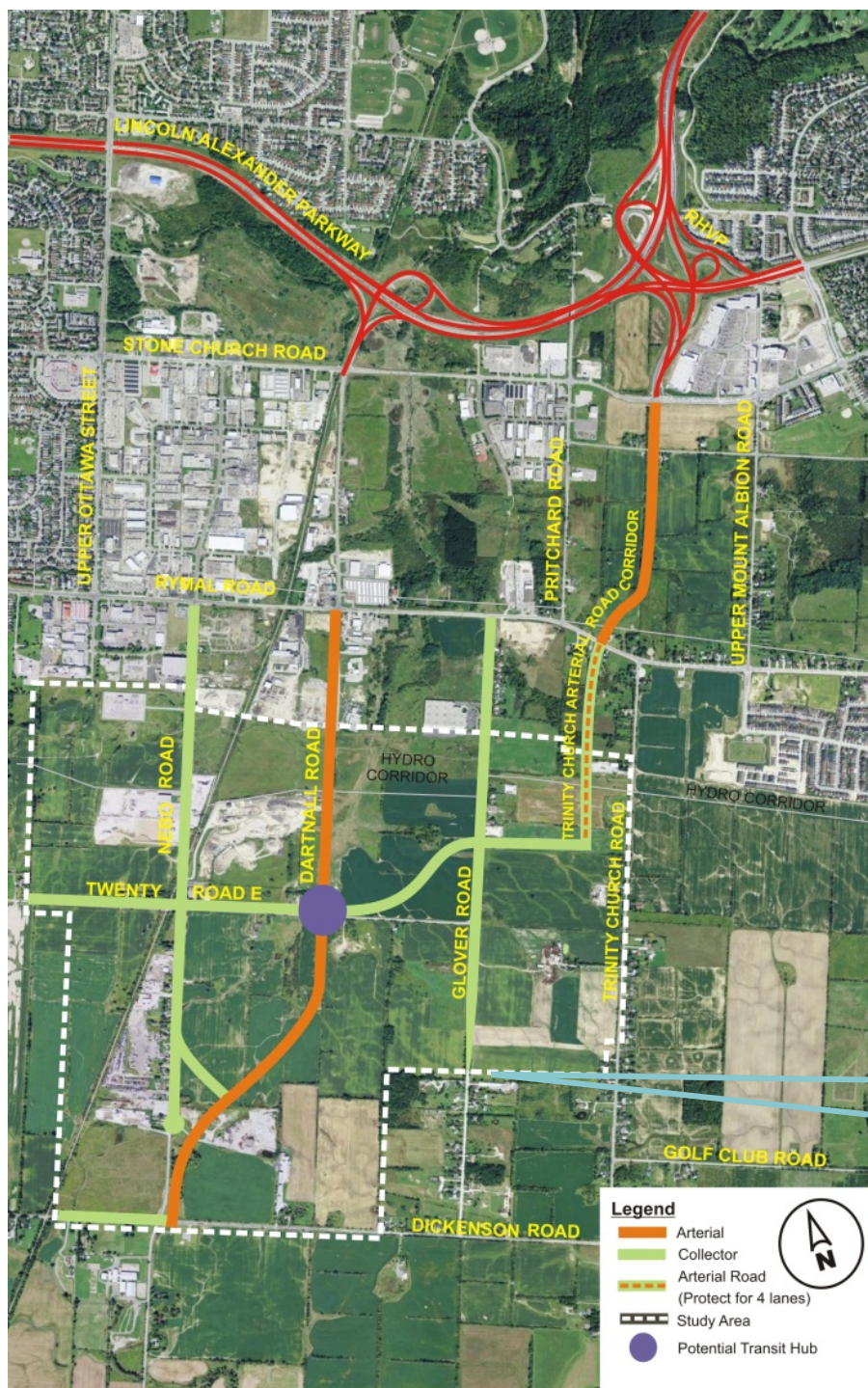
- Installation of a traffic island at the transition between the business park and Glover Road residential area.
- Addition of appropriately placed traffic signs to discourage truck traffic within the Glover Road residential area.

The three alternatives are shown in **Exhibits 4.2.2-1, 4.2.2-2 and 4.2.2-3**.

Initially only the first two alternatives were identified but following the June 25, 2012 Public Information Centre the third alternative was added in response to public feedback.

Note: Please refer to **Section 6.1.2.1 (Glover Road Petition)** for details regarding how this study has responded to the petition from Glover Road residents requesting that the City construct a cul-de-sac between 580 Glover Road and the business park.

EXHIBIT 4.2.2-1: GLOVER ROAD ALTERNATIVE 1



Installation of
appropriately
placed traffic signs

EXHIBIT 4.2.2-2: GLOVER ROAD ALTERNATIVE 2

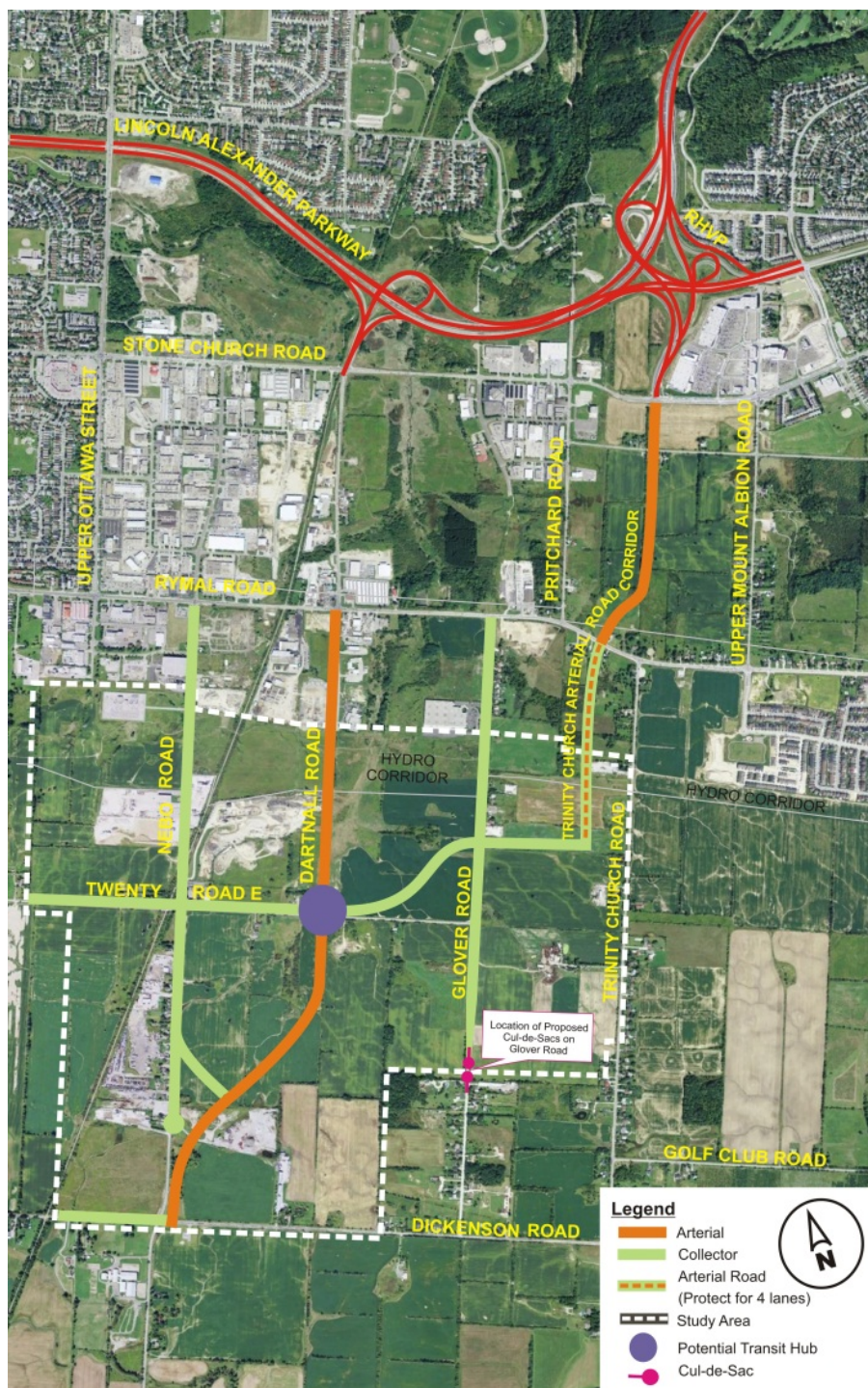
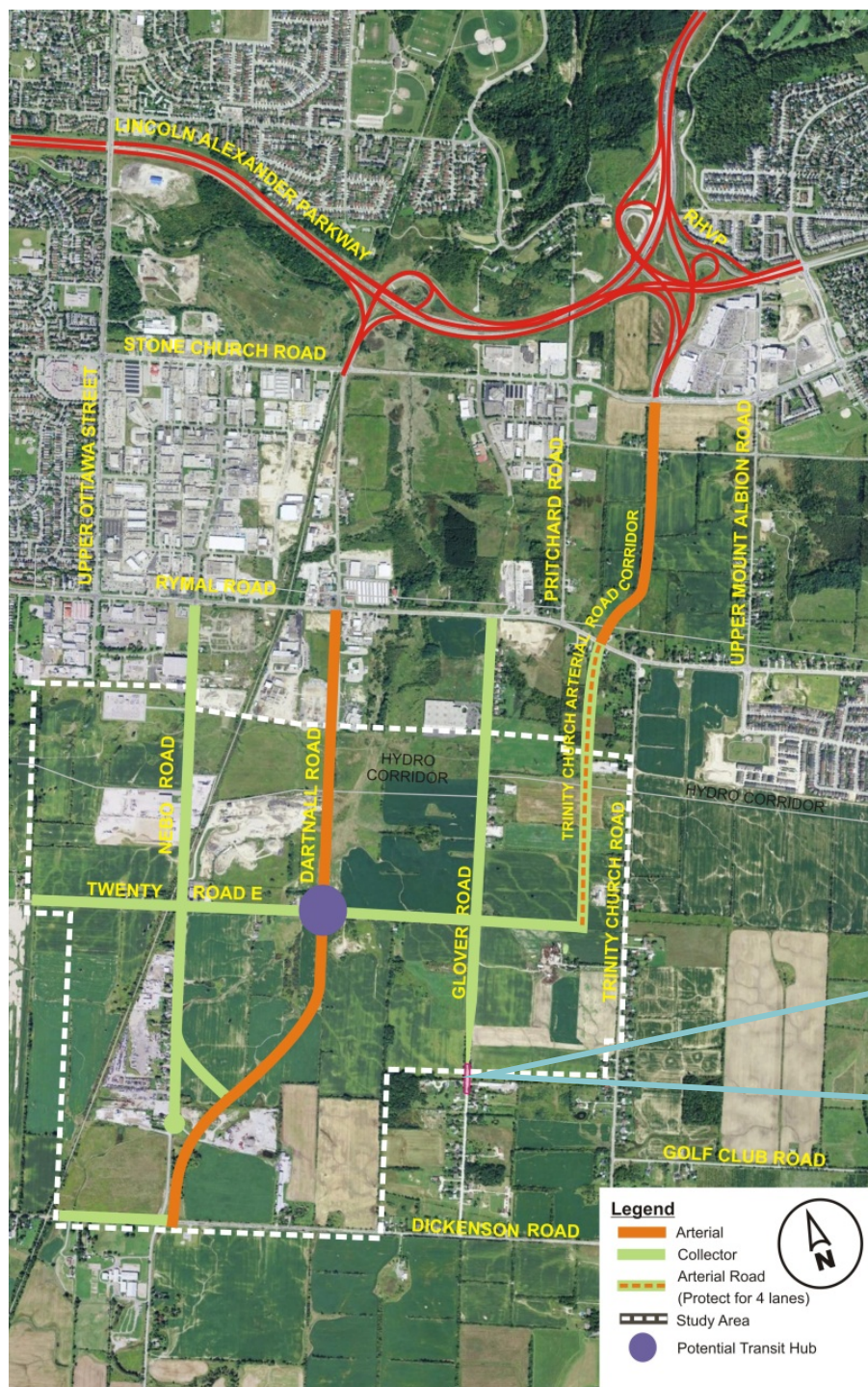


EXHIBIT 4.2.2-3: GLOVER ROAD ALTERNATIVE 3



Glover Road
Traffic Island
would be located
near or just south
of the business
park boundary.

Exact location and
design to be
determined during
Detail Design.

4.3 ASSESSMENT AND EVALUATION OF THE ALTERNATIVES

4.3.1 Evaluation Criteria

The evaluation criteria developed for the evaluation of the alternatives were based on a holistic approach to review the potential environmental effects (natural, social, economic, cultural, and transportation factors) of each alternative. The factor specific evaluation criteria were developed in consideration of general and study area specific potential environmental effects. Natural, social, economic, cultural and transportation factors were considered in the development of key evaluation criteria for each factor. The factor specific evaluation criteria are included in the evaluation of alternatives tables for Twenty Road and Glover Road (**Exhibit 4.3.2-1** and **Exhibit 4.3.3-3**).

4.3.2 Twenty Road: Assessment and Evaluation of Alternatives

Exhibit 4.3.2-1 outlines the detailed assessment and evaluation of alternatives for Twenty Road.

Exhibit 4.3.2-2 provides a summary of the assessment and evaluation of the Twenty Road alternatives and the identification of the preferred alternative.

Based on the assessment and evaluation of alternatives, Twenty Road Alternative 2 is the preferred alternative.

EXHIBIT 4.3.2-1: EVALUATION OF ALTERNATIVES - TWENTY ROAD

Twenty Road – Evaluation of Alternatives		
Evaluation Criteria	Alternative 1	Alternative 2
	Alignment as recommended in the North Glanbrook Industrial Business Park TMP	Extend existing road allowance directly east to the future Trinity Church Arterial Road Corridor ¹
Natural		
Effect on Terrestrial Features²	<ul style="list-style-type: none"> Alignment primarily traverses active agricultural fields. Alignment follows a minor, discontinuous hedgerow east of Glover Road and will likely remove this minor feature. 	<ul style="list-style-type: none"> Alignment follows existing Twenty Road then continues easterly along a hedgerow and will likely remove this feature. The southern extension of the Trinity Church Arterial Road alignment traverses active agricultural fields (currently planted with corn). Upgrades to / widening of the existing Twenty Road alignment to accommodate future traffic needs may require the removal of roadside trees along existing right-of-way. Removal of the south edge of a cultural thicket / meadow marsh / cultural meadow mosaic community at the current terminus of Twenty Road.

¹ This alignment was previously considered as part of Alternatives 2 and 4 in the North Glanbrook Industrial Business Park Transportation Master Plan.

² Vegetation communities are based on ELC mapping on Figure 2.2.2 in the Hannon Creek Subwatershed – North Glanbrook Industrial Business Park Master Drainage Plan (March 2009), Trinity Church Arterial Corridor Class EA - Natural Heritage Report (LGL 2007) and a reconnaissance-level field survey on May 24, 2012

Twenty Road – Evaluation of Alternatives		
Evaluation Criteria	Alternative 1	Alternative 2
Effect on Aquatic Features¹	<ul style="list-style-type: none"> The alignment crosses 1 medium constraint and 3 low constraint watercourses. Upgrades to / widening of the existing Twenty Road alignment to accommodate future traffic needs may also require culvert extension within a high constraint reach of Hannon Creek. 	<ul style="list-style-type: none"> The alignments cross 1 medium constraint and 2 low constraint watercourses. Upgrades to / widening of the existing Twenty Road alignment to accommodate future traffic needs may also require culvert extension within a high constraint reach of Hannon Creek.
Effect on Species of Conservation Concern	<p><u>Note:</u> Same effects for both Alternative 1 and Alternative 2.</p> <ul style="list-style-type: none"> Eastern Meadowlark (Threatened), Barn Swallow (Threatened) and Bobolink (Threatened) have all been recorded in the broader study area. The alignment traverses wheat and corn fields which are generally <i>low quality</i> habitat for these species (all protected under the <i>Endangered Species Act</i>). Milksnake (Special Concern) is also known to occur in the broader study area (SNC Lavalin 2011) and <i>may</i> be impacted by the new alignment. <i>Potentially</i> suitable habitat for Eastern 	<p><u>Note:</u> Same effects for both Alternative 1 and Alternative 2.</p> <ul style="list-style-type: none"> Eastern Meadowlark (Threatened), Barn Swallow (Threatened) and Bobolink (Threatened) have all been recorded in the broader study area. The alignment traverses wheat and corn fields which are generally <i>low quality</i> habitat for these species (all protected under the <i>Endangered Species Act</i>). Milksnake (Special Concern) is also known to occur in the broader study area (SNC Lavalin 2011) and <i>may</i> be impacted by the new alignments. <i>Potentially</i> suitable habitat for Eastern Ribbonsnake (Special Concern) also occurs in the study area and this species <i>may</i> be impacted by the new

¹ Constraint Classifications listed are as described in the Hannon Creek Subwatershed – North Glanbrook Industrial Business Park Master Drainage Plan Stream Classification Reports (TSH 2006) – for a corresponding map please see **Appendix E**.


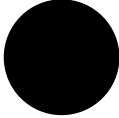

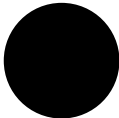

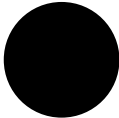


Twenty Road – Evaluation of Alternatives		
Evaluation Criteria	Alternative 1	Alternative 2
	<p>Ribbonsnake (Special Concern) also occurs in the study area and this species <i>may</i> be impacted by the new alignment.</p> <ul style="list-style-type: none"> • Monarch (Special Concern) has been recorded in the study area (SNC Lavalin) and suitable habitat exists wherever milkweed occurs. • Potential for an American Badger (Endangered) population to occur in the local area is “limited based on the lack of suitable soils and prey, but it is possible that they do roam through the area on occasion in search of food” (NRSI 2007, based on correspondence with the MNR). Therefore the alignments may impact American Badger through increased vehicular traffic. 	<p>alignments.</p> <ul style="list-style-type: none"> • Monarch (Special Concern) has been recorded in the study area (SNC Lavalin) and suitable habitat exists wherever milkweed occurs. • Potential for an American Badger (Endangered) population to occur in the local area is “limited based on the lack of suitable soils and prey, but it is possible that they do roam through the area on occasion in search of food” (NRSI 2007, based on correspondence with the MNR). Therefore the alignments may impact American Badger through increased vehicular traffic.
Social		
Effect on Existing Residential Areas	<p><u>Note:</u> Same effects for both Alternative 1 and Alternative 2.</p> <ul style="list-style-type: none"> • No direct residential impacts. • Minimal increase in traffic within the existing Glover Road residential area. For Glover Road north of Dickenson Road by 2031 the increase in traffic is anticipated to be less than 40 vehicles (combined north and south traffic) during peak travel times. 	<p><u>Note:</u> Same effects for both Alternative 1 and Alternative 2.</p> <ul style="list-style-type: none"> • No direct residential impacts. • Minimal increase in traffic within the existing Glover Road residential area. For Glover Road north of Dickenson Road by 2031 the increase in traffic is anticipated to be less than 40 vehicles (combined north and south traffic) during peak travel times.



Twenty Road – Evaluation of Alternatives		
Evaluation Criteria	Alternative 1	Alternative 2
	<ul style="list-style-type: none"> The transition (narrowing) of Glover Road from the industrial area into the rural residential area may discourage use by all but local traffic. 	<ul style="list-style-type: none"> The transition (narrowing) of Glover Road from the industrial area into the rural residential area may discourage use by all but local traffic.
Nuisance Effects (e.g. noise)	<ul style="list-style-type: none"> Nuisance effects (e.g. noise) associated with traffic. In particular, the residential properties on Glover Road north of Twenty Road may experience additional nuisance effects (e.g. noise) given the proximity of Twenty Road. 	<ul style="list-style-type: none"> Nuisance effects (e.g. noise) associated with traffic. In particular, the residential properties on the west side of Trinity Church Road adjacent to the extension of the Trinity Church Arterial Road Corridor may experience additional nuisance effects (e.g. noise) given the proximity of the Trinity Church Arterial Road Corridor.
Economic		
Effect on Existing Businesses	<ul style="list-style-type: none"> Existing farm lands would be severed by the road alignment. 	<ul style="list-style-type: none"> Existing farm lands would be severed by the road alignment.
Consistency with Existing Approved Development Plans	<ul style="list-style-type: none"> Provides access to lands approved for development. The draft approved plan 25T80024 (Glanbrook Industrial Park) <u>would need to be revised to reflect the road network.</u> 	<ul style="list-style-type: none"> Provides access to lands approved for development. The draft approved plan 25T85003 (Greenleaf Industrial Park) would require some revisions to reflect the road network; however, the plan is generally consistent with the network (e.g. would need to show Twenty Road as a collector rather than a local road).

Twenty Road – Evaluation of Alternatives		
Evaluation Criteria	Alternative 1	Alternative 2
Effect on potential lot size for future development	<ul style="list-style-type: none"> Provides for desirable larger potential lots; however, the curved section of road may reduce flexibility for dividing lands. 	<ul style="list-style-type: none"> Provides more desirable larger potential lots for future development.
Cultural		
Effect on Heritage Features	<ul style="list-style-type: none"> No impacts to heritage features 	<ul style="list-style-type: none"> No impacts to heritage features
Effect on Areas of Archaeological Potential	<ul style="list-style-type: none"> Impacts lands with archaeological potential 	<ul style="list-style-type: none"> Impacts lands with archaeological potential
Transportation and Utilities		
Effect on Existing Utilities	<ul style="list-style-type: none"> No impacts to existing utilities. 	<ul style="list-style-type: none"> Impacts to existing utilities can be minimized during Detail Design.
Effect on Overall Road Network	<ul style="list-style-type: none"> This alternative is missing the second east-west road (south of Twenty Road) which was included in the previously approved network. That second east-west road was planned to provide good layout/spacing within the road network; however, given the form of ongoing development this is no longer possible. The east-west traffic demand through the business park can be accommodated on Twenty Road and, as a result, the one east-west road (Twenty Road) is sufficient and does not adversely impact the overall road network. 	<ul style="list-style-type: none"> This alternative is missing the second east-west road (south of Twenty Road) which was included in the previously approved network. That second east-west road was planned to provide good layout/spacing within the road network; however, given the form of ongoing development this is no longer possible. The east-west traffic demand through the business park can be accommodated on Twenty Road and, as a result, the one east-west road (Twenty Road) is sufficient and does not adversely impact the overall road network.

Twenty Road – Evaluation of Alternatives		
Evaluation Criteria	Alternative 1	Alternative 2
Network Road Construction Costs	<ul style="list-style-type: none"> • \$14.9 M (rural) – \$21.4 M (urban) • Compared to the previously approved road network, there is an overall cost savings (\$2.2 M [rural] – 2.8 M [urban]) associated with only constructing one east-west collector road. 	<ul style="list-style-type: none"> • \$15.1 M (rural) – \$21.9 M (urban) • Compared to the previously approved road network, there is an overall cost savings (\$2.2 M [rural] – \$2.8 M [urban]) associated with only constructing one east-west collector road.
Total Road Length (km) Requiring Maintenance for the Road Network	<ul style="list-style-type: none"> • Arterial: 2.8 km • Collector: 6.5 km • Total: 9.3 km 	<ul style="list-style-type: none"> • Arterial: 3.2 km • Collector: 6.3 km • Total: 9.5 km

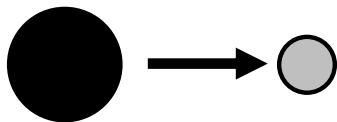
**EXHIBIT 4.3.2-2: SUMMARY OF THE EVALUATION OF ALTERNATIVES AND SELECTION OF THE PREFERRED ALTERNATIVE -
 TWENTY ROAD**

Twenty Road – Evaluation of Alternatives and Selection of Preferred Alternative			
Factors	Alternative 1	Alternative 2	Summary Notes
	Alignment as recommended in the North Glanbrook Industrial Business Park TMP	Extend existing road allowance directly east to the future Trinity Church Arterial Road Corridor	
Natural			Alternative 1 is slightly preferred from a terrestrial perspective. Alternative 2 is slightly preferred from an aquatic perspective. There is no discernible difference in terms of potential impacts to species at risk without the benefit of detailed habitat assessments and species-specific surveys to confirm the presence of certain species (i.e. Bobolink, Eastern Meadowlark, Barn Swallow); however, the alignment traverses wheat and corn fields which are generally low quality habitat for these species.
Social			Alternatives 1 and 2 result in the similar potential effects to residential areas due to traffic and traffic related nuisance effects (e.g. noise).
Economic			Alternative 2 is preferred as it provides more opportunity for desirable larger potential lots for future development and is most consistent with existing approved plans.
Cultural			Alternatives 1 and 2 result in similar potential effects as both impact lands with archaeological potential.

Twenty Road – Evaluation of Alternatives and Selection of Preferred Alternative			
Factors	Alternative 1	Alternative 2	Summary Notes
Transportation and Utilities			<p>Alternatives 1 and 2 result in similar effects to the overall road network and have similar construction costs. Traffic demand can be accommodated on one east-west collector road (i.e. Twenty Road). Compared to the previously approved network, there is an overall cost savings (\$2.2M [rural] - \$2.8 M [urban]) associated with only constructing one east-west collector road.</p> <p><u>Note:</u> The NGIBP TMP Preferred Transportation Network included the benefit of two Collectors roads. The traffic analysis has shown that the east-west traffic demand through the business park can be accommodated on Twenty Road and, as a result, the one east-west Collector road (Twenty Road) is sufficient and does not adversely impact the overall road network.</p>
Overall Summary	<p>Alternatives 1 and 2 result in similar impacts to the natural, social and cultural environments as well as to transportation and utilities.</p> <p>Alternative 2 is preferred as it results in the least adverse impacts to the economic environment by providing more opportunity for desirable larger potential lots for future development and by being most consistent with existing approved plans.</p>		

Legend

Most Preferred Least Preferred



4.3.2.1 Twenty Road and Trinity Church Arterial Road Corridor Intersection – Roundabout Screening

The City of Hamilton’s roundabout screening criteria (City of Hamilton 2008) was used to screen the feasibility of a roundabout at the intersection of Twenty Road and Trinity Church Arterial Road. The results of this screening are provided in **Exhibit 4.3.2.1-1** and indicate that a roundabout may be feasible at the future intersection of Twenty Road and the Trinity Church Arterial Road Corridor.

**EXHIBIT 4.3.2.1-1: ROUNDABOUT SCREENING – TWENTY ROAD AND TRINITY CHURCH
 ARTERIAL ROAD CORRIDOR INTERSECTION**

Roundabout Screening Criteria	Notes
1. <u>Right-of-way</u> : Is there enough space for a roundabout, or is additional right-of-way or property required? The size of the roundabout will depend on the design vehicle to be accommodated, and traffic flows that dictate whether the roundabout is single-land or multi-lane.	<p>Due to the anticipated footprint of the roundabout, additional right-of-way would be required beyond the right-of-way otherwise required for a more “traditional” intersection.</p> <p>The standard for a 26m right-of-way is 12mx12m daylight triangles. Additional lands may be required considering the potential for oversize truck loads.</p>
2. <u>Intersection geometry</u> : Does the intersection have an offset, high skew angle, or more than four legs? Roundabouts can accommodate unusual geometry if there is sufficient right-of-way.	The alignment of the intersection is subject to future study. As roundabouts can accommodate geometry given sufficient right-of-way, it is anticipated that intersection geometry will not be problematic.
3. <u>Safety</u> : Are there high numbers of angle and turning movement collisions that could be mitigated with a roundabout?	<p>This is not an existing intersection. As a result, information regarding collisions is not available.</p> <p>Note: Available data clearly indicates that at roundabouts there are less collisions and collisions are less severe.</p>
4. <u>Delays or queues</u> : Are there high delays or long vehicle queues being experienced that could be mitigated with a roundabout?	This is not an existing intersection. As a result, information regarding delays and queues is not available; however, a benefit of roundabouts is the processing of through and turning movements with minimal delay.

Roundabout Screening Criteria	Notes
5. <u>Traffic flows</u> : Are existing or forecast traffic flows relatively balance between approaches? (Unbalanced flows do not necessarily mean a roundabout is not a suitable alternative, as there are other benefits to roundabouts such as safety.) Is there a high percentage of turning movements? High left turn flows, for instance, favours roundabouts because of signal lost time.	This is not an existing intersection. As a result, traffic count data is not available. The <i>estimated</i> demand at this location does <u>not</u> preclude the appropriateness of a roundabout, but operational analysis would need to confirm this.
6. <u>Nearby structures or traffic control</u> : Is the location near a structure? A roundabout may not require additional approach lanes, and therefore do not require that a nearby overpass or underpass be widened. Is it near a signalized intersection where queues may spill back into the roundabout? Is it located near a railway crossing, where queues may block the railway tracks? Traffic signals can be interconnected with a railway crossing, but not a roundabout.	The distance between Twenty Road and Rymal Road is more than 800 metres and with the proposed alignment this separation increases to over 1.2 km. There are no nearby railway crossings or structures. Accordingly, proximity to these features does not preclude the appropriateness of a roundabout.
7. <u>Nearby driveways</u> : Do any driveways need to be relocated because of splitter islands?	Driveway placement in relation to the intersection will be considered through the future site plan process.
8. <u>Land use context</u> : Is there a land use transition where a roundabout could notify motorists of a change in the road environment? Can they be used at either end of a commercial corridor to accommodate U-turns, allowing access driveways to be right turns only? This can mean more commercial sites served with driveways spaced closer together.	As the form of development near this intersection is not yet determined it is not possible to comment on potential impacts to driveways for nearby businesses. Driveway placement in relation to the intersection will be considered through the future site plan process.

Roundabout Screening Criteria		Notes
9. <u>Traffic calming</u> : Are high traffic speeds being experienced, or likely, due to the design of the road and the surrounding land uses?		<p>This is not an existing intersection. As a result, there is no available information regarding this intersection. It is noteworthy that roundabouts provide 24 hour intersection control and speed reduction.</p> <p>Note: Traffic calming features (vertical or horizontal) would not be provided on these roadways.</p>
10. <u>Vulnerable road users</u> : Does the intersection have high numbers of bicyclists, or are there visually impaired pedestrians? Traffic signals are sometimes preferred in these cases.		<p>Hearing or visually impaired pedestrians may make use of this intersection, as with any intersection.</p> <p>Cyclists and pedestrians would be accommodated in the design of the roundabout. Cyclists may opt to cycle through the roundabout or dismount and walk.</p> <p>Note: The City of Hamilton's Cycling Master Plan includes proposed bike lanes along Twenty Road and paved shoulders along Trinity Church Road. The Trinity Church Arterial Road Corridor Class Environmental Assessment identified a road cross-section with either bike lanes or paved shoulders along the Trinity Church Arterial Road Corridor within the business park.</p>
11. <u>Technical constraints</u> : Are there any steep grades, unusual drainage, possible difficulties with meeting sight distance requirements, etc. that may preclude a roundabout?		<p>Technical constraints are not anticipated to be problematic.</p>
Conclusion	<p>Based on the above notes, it appears that a roundabout may be feasible at the future intersection of Twenty Road and Trinity Church Arterial Road Corridor.</p>	

4.3.3 Glover Road: Assessment and Evaluation of Alternatives

In advance of evaluating the alternatives for Glover Road it is interesting to compare how the existing traffic volumes along Glover Road compare to anticipated traffic volumes in 2031. **Exhibit 4.3.3-1** outlines the peak travel time traffic volumes along Glover Road (existing and 2013 with and without development of the business park) and **Exhibit 4.3.3-2** outlines a comparison of the 24 hour traffic volumes. This information was presented and discussed at the Glover Road public meeting on December 4, 2012.

EXHIBIT 4.3.3-1: GLOVER ROAD – PEAK TRAVEL TIME VOLUMES (EXISTING AND 2031)

Glover Road - Combined Northbound and Southbound Traffic				
	South of Twenty Road		North of Dickenson Road	
	AM Peak	PM Peak	AM Peak	PM Peak
Existing	55	80	40	55
2031 <u>without</u> business park development	65	95	50	65
2031 <u>with</u> business park development	535	770	75	105
Total Incremental Traffic Growth	480	690	35	50
Business Park Traffic Growth	470	675	25	40

EXHIBIT 4.3.3-2: GLOVER ROAD – 24 HOUR VOLUMES (EXISTING AND 2031)

Glover Road – 24 Hour Volumes		
	Immediately South of Twenty Road	Immediately North of Dickenson Road
Existing	670	460
Estimated 2031	6,000 – 7,500	850 – 1,000

Collector roads like Glover Road typically carry between 5,000 to 8,000 vehicles per day. As a result, future traffic volumes along Glover Road are considered low for a Collector road. This is most notable north of Dickenson Road in the vicinity of the Glover Road residential area where traffic volumes are anticipated to remain well below typical volumes for a Collector road.

Exhibit 4.3.3-3 outlines the detailed assessment and evaluation of alternatives for Glover Road.

Exhibit 4.3.3-4 provides a summary of the assessment and evaluation of the Glover Road alternatives and the identification of the preferred alternative.

Based on the assessment and evaluation of alternatives, Glover Road Alternative 3 is the preferred alternative.

EXHIBIT 4.3.3-3: EVALUATION OF ALTERNATIVES - GLOVER ROAD

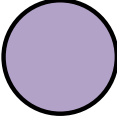




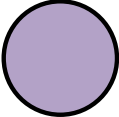
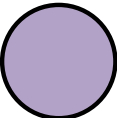
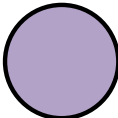
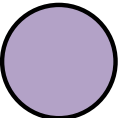
Glover Road – Evaluation of Alternatives			
Evaluation Criteria	Alternative 1 Do Nothing – with Appropriate Traffic Signs	Alternative 2 Cul-de-sacs on Glover Road north of Dickenson Road East	Alternative 3 Traffic Island on Glover Road north of Dickenson Road East with Appropriate Traffic Signs
Natural			
Effect on the Natural Environment	<ul style="list-style-type: none">No change to the existing condition	<ul style="list-style-type: none">Footprint impacts (e.g. vegetation removals) associated with construction of the cul-de-sacs.	<ul style="list-style-type: none">Footprint impacts (e.g. vegetation removals) associated with construction of the traffic island (road widening near the island).
Social			
Effect on Access to the Existing Residential Area (Glover Road)	<ul style="list-style-type: none">No change to the existing access along Glover Road (no out-of-way travel¹).The addition of appropriately placed traffic signs will identify that through truck traffic is not permitted within the Glover Road residential area.Compliance with truck routes would be monitored.Minimal increase in traffic within the existing Glover Road residential area (by 2031 approximately 50 additional vehicles during peak hours).	<ul style="list-style-type: none">Out-of-way travel as a result of the cul-de-sacs.Only local traffic is anticipated to access Glover Road between Dickenson Road East and the cul-de-sacs.	<ul style="list-style-type: none">No change to the existing access along Glover Road (no out-of-way travel¹).The addition of appropriately placed traffic signs will identify that through truck traffic is not permitted within the Glover Road residential area.Compliance with truck routes would be monitored.Minimal increase in traffic within the existing Glover Road residential area (by 2031 approximately 50 additional vehicles during peak hours).The traffic island is anticipated to calm traffic and discourage trucks from entering the Glover Road residential area.The traffic island will help to more clearly identify the transition from the business park to the residential area.
Nuisance Effects (e.g. noise)	<ul style="list-style-type: none">Minor nuisance effects (e.g. noise) associated with the anticipated increase in traffic (by 2031 approximately 50 additional vehicles during peak hours).Traffic signs combined with the transition of the road from an urban section to a rural section may discourage traffic, and the associated nuisance effects (e.g. noise), within the residential area.	<ul style="list-style-type: none">Generally less nuisance effects (e.g. noise) associated with traffic within the residential area.Residents living near the cul-de-sacs may experience some nuisance effects (e.g. noise) associated with vehicles turning around at the cul-de-sacs.	<ul style="list-style-type: none">Minor nuisance effects (e.g. noise) associated with the anticipated increase in traffic (by 2031 approximately 50 additional vehicles during peak hours).Traffic signs combined with the transition of the road from an urban section to a rural section may discourage traffic, and the associated nuisance effects (e.g. noise), within the residential area.

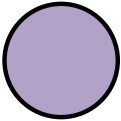


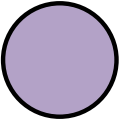


¹ Out-of-way travel involves the need to take an indirect route or travel an extra distance

Glover Road – Evaluation of Alternatives			
Evaluation Criteria	Alternative 1 Do Nothing – with Appropriate Traffic Signs	Alternative 2 Cul-de-sacs on Glover Road north of Dickenson Road East	Alternative 3 Traffic Island on Glover Road north of Dickenson Road East with Appropriate Traffic Signs
	<ul style="list-style-type: none"> Nuisance effects (e.g. noise) from any trucks illegally using Glover Road as an access route. Compliance with truck routes would be monitored. 		<ul style="list-style-type: none"> Nuisance effects (e.g. noise) from any trucks illegally using Glover Road as an access route. Compliance with truck routes would be monitored.
Effect to Emergency Service Response Time and Routing	<ul style="list-style-type: none"> No change to the existing emergency service response time or routing. 	<ul style="list-style-type: none"> The cul-de-sacs would be a significant impact to emergency response time. Delays would be encountered due to additional distance to be travelled (out-of-way travel). For example, the Fire Department has indicated an additional 3-5 minutes will be required for fire response and if EMS approached from the wrong end. 	<ul style="list-style-type: none"> No change to the existing emergency service response time or routing.
Effect to Winter Road Maintenance	<ul style="list-style-type: none"> No change to the existing response time for winter maintenance. 	<ul style="list-style-type: none"> Anticipated delays to winter maintenance response times. 	<ul style="list-style-type: none"> No change to the existing response time for winter maintenance.
Effect to Waste Collection Operations	<ul style="list-style-type: none"> No change to existing waste collection operations. 	<ul style="list-style-type: none"> Waste collection operations can be accommodated with a cul-de-sac radius of 13m (minimum). 	<ul style="list-style-type: none"> No change to existing waste collection operations.
Property Required	<ul style="list-style-type: none"> No property required. 	<ul style="list-style-type: none"> Property (residential and industrial/commercial) will be required to accommodate the cul-de-sacs at a cost of approximately \$135,000. 	<ul style="list-style-type: none"> Property will be required to accommodate the traffic island. The cost of purchasing property will depend on the design but could be similar to the property costs associated with the cul-de-sacs.
Economic			
Effect on Businesses	<ul style="list-style-type: none"> No change to the existing condition. 	<ul style="list-style-type: none"> No anticipated operational impacts to businesses. 	<ul style="list-style-type: none"> No anticipated operational impacts to businesses.
Cultural			
Effect on Heritage Features	<ul style="list-style-type: none"> No change to the existing condition. 	<ul style="list-style-type: none"> No impacts to heritage features. 	<ul style="list-style-type: none"> No impacts to heritage features.
Effect on Areas of Archaeological Potential	<ul style="list-style-type: none"> No change to the existing condition. 	<ul style="list-style-type: none"> Some impacts to lands with archaeological potential. Impacts, if any, to buried archaeological resources are anticipated to be minimal. 	<ul style="list-style-type: none"> Minimal impacts to lands with archaeological potential. Impacts, if any, to buried archaeological resources are anticipated to be minimal.
Transportation			
Effect on Existing Utilities	<ul style="list-style-type: none"> No impacts to existing utilities. 	<ul style="list-style-type: none"> Existing hydro poles would need to be relocated in the vicinity of the cul-de-sacs. 	<ul style="list-style-type: none"> No anticipated impacts to existing utilities (likely to be avoided by design).
Effect on Overall Road Network	<ul style="list-style-type: none"> By keeping Glover Road open there is more flexibility within the road network, providing redundancy for detours and more road choice for drivers, local residents and City services including emergency operations. Trucks may illegally use Glover Road as an access route. Compliance with truck routes would have to be monitored. 	<ul style="list-style-type: none"> The redirected traffic (approximately 100 vehicles combined northbound and southbound traffic) during peak travel times which can be accommodated along nearby roadways without the need for additional road capacity. The cul-de-sacs would encourage trucks to stay on truck routes. 	<ul style="list-style-type: none"> By keeping Glover Road open there is more flexibility within the road network, providing redundancy for detours and more road choice for drivers, local residents and City services including emergency operations. Trucks may illegally use Glover Road as an access route. Compliance with truck routes would have to be monitored.
Road Operations and Maintenance	<ul style="list-style-type: none"> No change to the existing road operations and maintenance level of service. 	<ul style="list-style-type: none"> Potential reduction to the existing road operations and maintenance level of service. 	<ul style="list-style-type: none"> No change to the existing road operations and maintenance level of service.

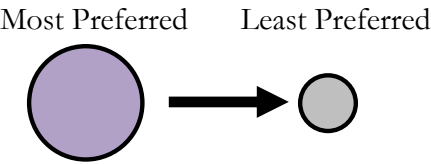
Glover Road – Evaluation of Alternatives			
Evaluation Criteria	Alternative 1 Do Nothing – with Appropriate Traffic Signs	Alternative 2 Cul-de-sacs on Glover Road north of Dickenson Road East	Alternative 3 Traffic Island on Glover Road north of Dickenson Road East with Appropriate Traffic Signs
Road Benchmark Construction Costs	<ul style="list-style-type: none">Minor costs would be incurred for pavement modifications.Possible additional costs to address any additional physical features (e.g. tree planting) which may be warranted to help in identifying the transitions from the business park to the local road.	<ul style="list-style-type: none">Construction costs of approximately \$240,000.Additional costs (~\$135,000) would be incurred to purchase the property required for the cul-de-sacs.Additional costs would be incurred to relocate some hydro poles.	<ul style="list-style-type: none">Construction costs will depend on the design and complexity of the traffic island but would be expected to be significantly less than the costs associated with the cul-de-sacs.The cost of purchasing property will depend on the design but the intent would be not to acquire property or minimize property impacts if required.

EXHIBIT 4.3.3-4: SUMMARY OF THE EVALUATION OF ALTERNATIVES AND SELECTION OF THE PREFERRED ALTERNATIVE - GLOVER ROAD

Glover Road – Summary of the Evaluation of Alternatives and Selection of a Preferred Alternative				
Factors	Alternative 1	Alternative 2	Alternative 3	Summary Notes
	Do Nothing – with Appropriate Traffic Signs	Cul-de-sacs on Glover Road north of Dickenson Road East	Traffic Island on Glover Road north of Dickenson Road East with Appropriate Traffic Signs	
Natural				<p>Although there is a difference between alternatives the impacts are fairly minor and could be mitigated.</p> <p>Alternative 1 is preferred as it does not result in any direct impacts to the natural environment (e.g. no vegetation removal required).</p>
Social				<p>It is noteworthy that the Traffic Analysis has determined that even by 2031 the traffic volumes along Glover Road within the residential area north of Dickenson Road are anticipated to remain well below typical volumes for a Collector road. This is true with or without the cul-de-sacs.</p> <p><u>Without</u> the cul-de-sacs there will be a minimal increase in traffic within the existing Glover Road residential area (by 2031 approximately 50 additional vehicles during peak hours).</p> <p>Although Alternative 2 would reduce traffic within the residential area, there are a number of adverse impacts anticipated to be associated with the cul-de-sacs. In particular, the reduction in emergency service response time (e.g. by 3-5 minutes for fire response), anticipated reduction to the response time for winter road maintenance, and property requirements. In addition, residents living near the cul-de-sacs may experience some nuisance effects (e.g. noise) associated with vehicles turning around at the cul-de-sacs.</p> <p>Alternative 1 and Alternative 3 are preferred over Alternative 2 as they do not result in any increase to emergency response time and do not change the response time for winter maintenance. In addition, within the residential area the use of Glover Road by non-local traffic will likely be discouraged both by the transition (urban to rural) from the industrial to the residential area as well as through the addition of appropriately placed traffic signs. Compliance with truck routes would be monitored.</p> <p>Alternative 3 is preferred as the traffic island would be anticipated to calm traffic entering the Glover Road residential area and help to more clearly identify the transition from the business park to the residential area.</p>
Economic				<p>The alternatives are not anticipated to result in effects to businesses.</p>

Glover Road – Summary of the Evaluation of Alternatives and Selection of a Preferred Alternative				
Factors	Alternative 1	Alternative 2	Alternative 3	Summary Notes
Cultural				Although there is a difference between alternatives the impacts are fairly minor and could be mitigated. Alternative 1 is preferred as it does not impact lands with archaeological potential.
Transportation				Alternative 2 requires the relocation of hydro poles and would result in the reduction to response time for operations and maintenance services. Alternative 1 and Alternative 3 are preferred over Alternative 2 since keeping Glover Road open provides more flexibility within the road network. Although trucks may illegally use Glover Road the traffic signs should discourage trucks within the residential area. Alternative 1 is preferred due to the minor costs to implement.
Overall Summary	As there is little to no difference between the alternatives for natural, economic and cultural criteria, these criteria do not weigh heavily into the identification of the preferred alternative. Although Alternative 1 is preferred from a transportation perspective, this preference is due to the minor costs to implement. Other than cost, Alternative 3 presents similar transportation features to Alternative 1 and is preferred from a social perspective. Both Alternative 1 and Alternative 3 keep Glover Road open which provides more flexibility within the road network. Maintaining flexibility within the road network is in keeping with the City-wide Transportation Master Plan which identifies an objective to maximize the efficiency of the City's existing road network. Alternative 3 is preferred as the traffic island would be anticipated to calm traffic entering the Glover Road residential area and help to more clearly identify the transition from the business park to the residential area. Overall, Alternative #3 would provide a balanced solution between Transportation and Social Evaluation Criteria. <u>Note:</u> Although Alternative 2 would be anticipated to encourage only local traffic to access Glover Road between Dickenson Road East and the cul-de-sacs, the benefits of Alternative 2 would be outweighed by the associated negative impacts of the cul-de-sacs.			

Legend



4.3.3.1 Glover Road Traffic Signs and Traffic Island Design

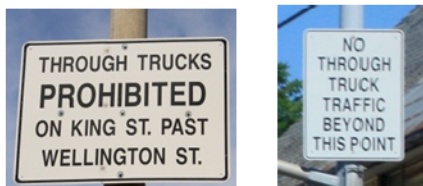
Traffic Signs

The City's policy is to use permissive signs to indicate where truck routes are located.



Examples – **Permissive** Signs

Under certain conditions restrictive signs may be used.



Examples – **Restrictive** Signs

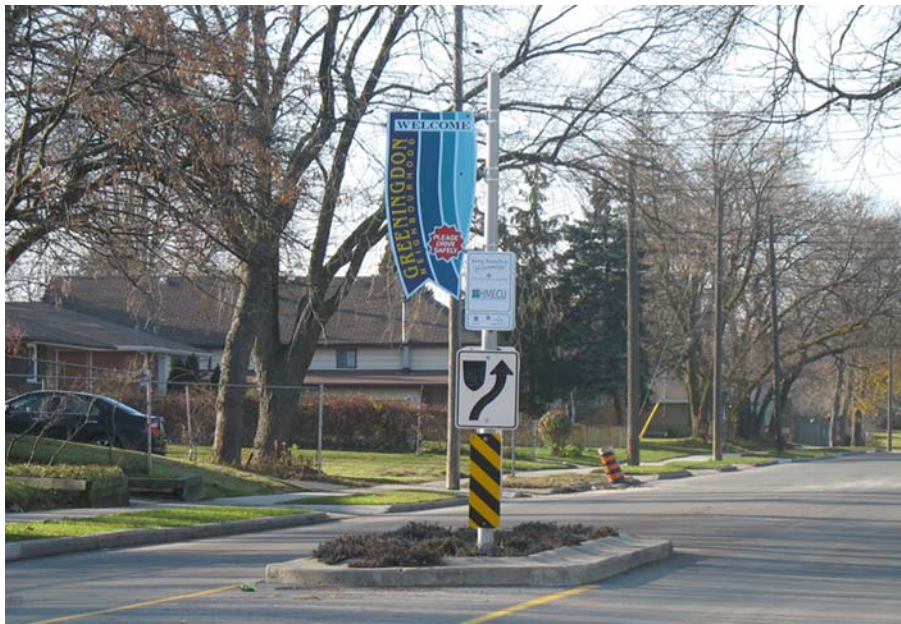
As part of the preferred Glover Road alternative, restrictive signs are proposed to be installed along Glover Road. The intent is to discourage trucks from travelling through the Glover Road residential area.

Traffic Island Design

Exhibit 4.3.3.1-1 provides a photograph of a traffic island along Limeridge Road to provide a general understanding of what a traffic island looks like. This is not the design for the Glover Road traffic island.

The Project Team reviewed potential footprint impacts associated with a traffic island and confirmed that it would be feasible to implement a traffic island along Glover Road north of Dickenson Road. In reviewing feasibility of adding a traffic island consideration was given to potential footprint impacts as well as maintaining access to/from nearby driveways.

EXHIBIT 4.3.3.1-1: TRAFFIC ISLAND CONCEPT – EXAMPLE ONLY (LIMERIDGE ROAD)



The traffic island will be designed during Detail Design. The following will be considered:

- The traffic island should be economical, but look pleasing and be a positive addition to the streetscape.
- If vegetation is to be planted it should be easily maintained and not impact vehicle sightlines. The size of the island may limit planting opportunities.
- Property impacts should be minimized.
- Avoid impacts to entrances (driveways).

4.3.4 Preferred Transportation Network

Based on the assessment and evaluation of alternatives for Twenty Road and Glover Road the following are the preferred alternatives addressed by this Transportation Master Plan Addendum:

- Twenty Road Alternative 2: Extend existing road allowance directly east to the future Trinity Church Arterial Road Corridor
- Glover Road Alternative 3: Traffic island on Glover Road north of Dickenson Road East – with appropriate traffic signs

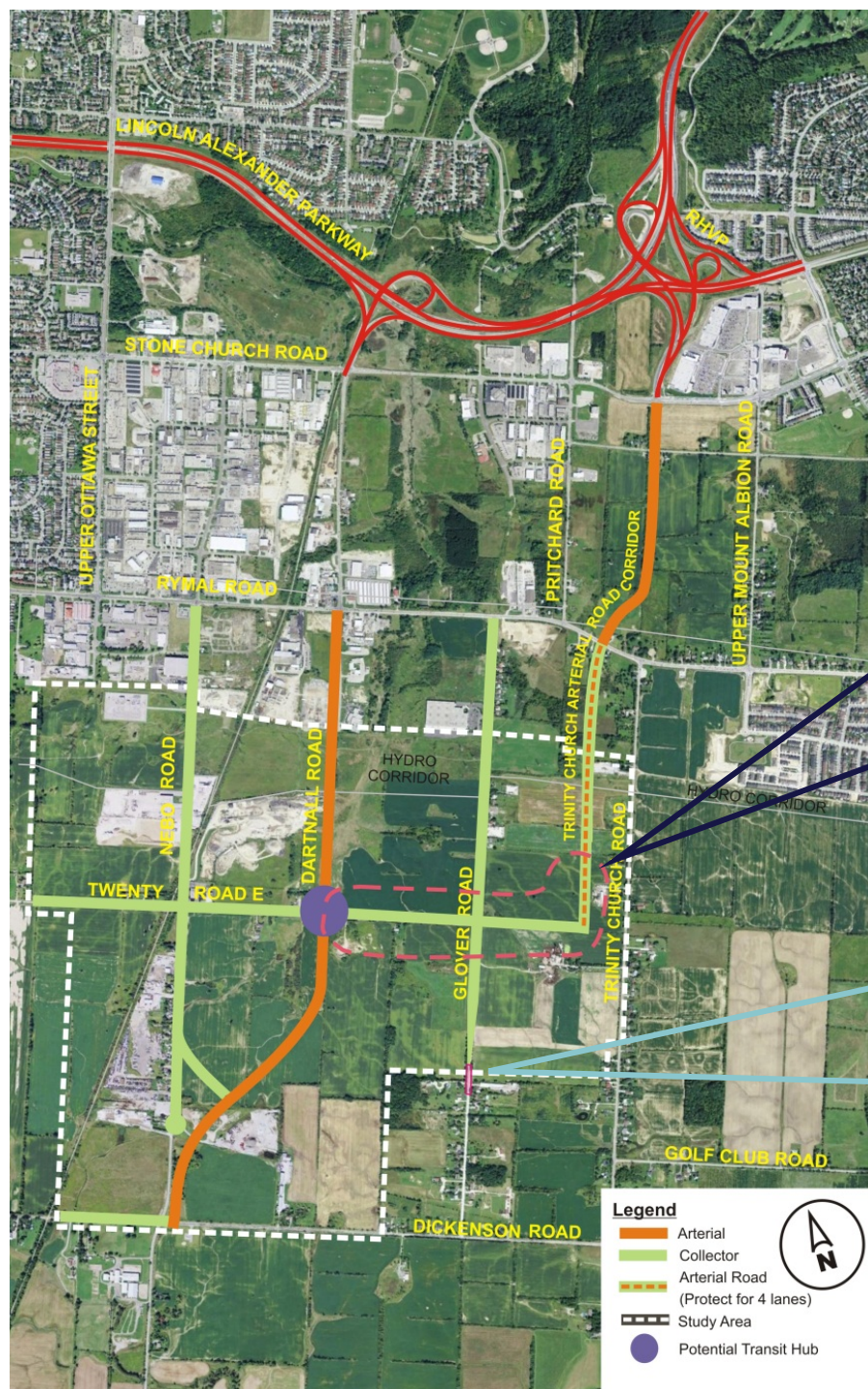
As a result, the transportation network features the following arterial and collector roads:

- Nebo Road (30m right-of-way) – two-lane collector road from Rymal Road south to the connection with the Dartnall Road Extension;
- Dartnall Road (36m right-of-way north of the existing terminus, 40 m right-of-way south of the existing terminus) – four-lane arterial road from Rymal Road south to Dickenson Road;
- Glover Road (26m right-of-way) – two-lane collector road from Rymal Road to approximately 650m south to the south boundary of the business park with a traffic island and appropriate traffic signs near the south boundary of the business park;
- Trinity Church Arterial Road Corridor (45m [minimum] right-of-way) – two-lane arterial road from Rymal Road south to the Twenty Road Extension (protect for four lanes);
- Twenty Road (30m right-of-way) – two-lane collector road from 600m west of Nebo Road to the Trinity Church Arterial Road Corridor.

The right-of-way widths noted above are in keeping with the North Glanbrook Industrial Business Park Transportation Master Plan and subsequent Class Environmental Assessments (i.e. Dartnall Road Extension and Trinity Church Arterial Road Corridor).

The preferred transportation network is shown in **Exhibit 4.3.4-1**.

Exhibit 4.3.4-1: Preferred Transportation Network



Twenty Road
Extension east to the
Trinity Church Arterial
Road Corridor.

Intersection
configuration to be
determined during
Detail Design.

Glover Road
Traffic Island
located near or just
south of the
business park
boundary.

Exact location and
design to be
determined during
Detail Design.

4.3.4.1 Staging/Implementation

The preferred transportation network allows for good staging since existing roads can be used and local roads are not immediately required which presents cost-saving opportunities. For example, infrastructure need not be constructed (and maintained) until development is imminent. In addition, the design of the preferred transportation network included consideration for the establishment of a local road network to support development of the park and to feed the future higher-order road system.

The 2006 Transportation Master Plan presented a conceptual staging plan for the development of the business park with development occurring from north to south. The form of development has varied from that concept.

With consideration for the form of development occurring within the business park, **Exhibit 4.3.4.3-1** provides an update to the implementation of the anticipated, and completed, road network upgrades based on anticipated travel demand.

EXHIBIT 4.3.4.3-1: IMPLEMENTATION SCHEDULES

Project	Scope of Work	Timeframe
Nebo Road – Rymal Road to Twenty Road	Reconstruct two lanes	To be constructed after Dartnall Road is completed.
Nebo Road – Twenty Road to 100 m south	Reconstruct two lanes	To be constructed in 2013
Nebo Road – 100 m south to Dartnall Extension	Reconstruct two lanes	No timing identified
Twenty Road – West of Nebo Road to the Dartnall Road Extension	Reconstruct two lanes	Constructed in 2011
Twenty Road – Dartnall Road Extension to Glover Road	Reconstruct two lanes	To be constructed in 2013
Twenty Road – Glover Road to the Trinity Church Arterial Road Corridor	New two lane road	No timing identified.
Glover Road – Rymal Road to Twenty Road	Reconstruct two lanes	Constructed in 2012
Glover Road – Twenty Road to approx. 650 m south	Reconstruct two lanes	Constructed in 2012
Glover Road – Installation of a traffic island and appropriate traffic signs near the south boundary of the business park	Traffic island and appropriate traffic signs	No timing identified.
Dartnall Road Extension – Existing terminus to Twenty Road	New four lane road (could be advanced as four lanes initially; requires	To be constructed in 2013.

Project	Scope of Work	Timeframe
	widening of existing section south of Rymal)	
Dartnall Road Extension – Twenty Road to Dickenson Road	New two lane road (could be advanced as four lanes initially)	No timing identified.
Trinity Church Arterial Road Corridor – Rymal Road to Twenty Road	New two lane road (could be advanced to four lanes initially)	No timing identified.

4.3.4.2 Other Considerations

Transit

The future intersection of the Dartnall Road Extension and Twenty Road has been identified as a potential future transit hub as it is centrally located within the business park and within an area zoned commercial. It is noteworthy that the City of Hamilton's Growth Related Integrated Development Strategy: Growth Report (2006) presents a conceptual higher order (bus) transit corridor extending along Rymal Road in the vicinity of the Red Hill Business Park South. Additional studies will be undertaken to formalize and refine future transit corridors and identify hubs.

Current transit service includes HSR's shared ride taxi service, known as TransCab. The service was introduced on September 4, 2011 to provide Canada Bread employees at the Nebo Road and Twenty Road facility access to HSR routes #22 Upper Ottawa and #44 Rymal. On December 16, 2011 City Council directed HSR to extend the TransCab service to allow employees at Countrywide Recycling (900 Nebo Road) to use the service. On January 7, 2013, in response to concerns raised by Canada Bread management and union, the TransCab service was modified to operate on a fixed schedule. When Maple Leaf Meats starts regular production the fixed schedule worker shuttle service can be extended to Glover Road, to provide those workers with transit service. The existing TransCab service is carrying an average of 40 to 50 one-way trips per day between the bus transfer point at Upper Ottawa and Rymal Road and Canada Bread/Countrywide Recycling (City of Hamilton 2012b).

Bus Route Extensions to the Red Hill Industrial Business Park may be looked at in the future subject to receiving the appropriate capital budget approvals.

Additional expansion of transit service into the business park would potentially be triggered by an identified demand established by significant build out of the park or by the need of one or more potential major user(s).

Truck Routes

As noted in **Section 3.3.1 (Existing Road Network)**, the current truck route network in the vicinity of the business park does not utilize the existing road network.

Future Land Use and Existing Draft Plans of Subdivision

Under the Urban Hamilton Official Plan (appealed to the Ontario Municipal Board and not currently in effect) the lands within the Transportation Master Plan (TMP) study area are designated primarily for Business Park use, in addition to inclusion of Arterial Commercial, Utility and Open Space land use designations. The Urban Hamilton Official Plan has been appealed to the Ontario Municipal Board and is not currently in effect. The Glanbrook Official Plan will remain in effect until the Ontario Municipal Board appeal process is resolved.

Within the TMP study area there exists approved draft plan of subdivisions. The *Planning Act* makes provision for the approval authority (the “City”) to withdraw or make changes to a draft plan at any time prior to final approval / registration. In instances where a draft plan does not conform with a more recent Council approval such as a Transportation Master Plan, the City may make changes to a draft plan to bring it into conformity. Any changes made by the municipality may be appealed by the Owner or any other prescribed person or public body to the Ontario Municipal Board.

5 ENVIRONMENTAL EFFECTS AND MITIGATION

5.1 NATURAL ENVIRONMENT

5.1.4 Aquatic Environment

Potential Environmental Effects

At this early stage of the planning process, details of the proposed works are not known (e.g. culvert extensions, culvert replacements, new culverts, realignments, etc.), therefore **direct** effects cannot be addressed. Nevertheless, it can be assumed that there is potential for the following general **indirect** effects to the medium and low constraint watercourses along the preferred alignments.

- potential for erosion and downstream sediment transport during construction;
- potential for release of petroleum products, debris or other potential contaminants/deleterious substances;
- potential for localized disturbance of riparian vegetation.

Effects will be reviewed and refined during future design phases and any additional effects will be addressed in associated design and/or Class Environmental Assessment documentation.

Mitigation Measures

A standard suite of mitigation measures is recommended for any works that occur in the vicinity of any watercourses. These mitigation measures will be reviewed and refined during future design phases. Site-specific mitigation measures will also be recommended during future study phases.

- Erosion and sediment control measures will be implemented during all phases of construction, clean-up and restoration to prevent sediment laden runoff from entering any of the watercourses directly from the construction zone. The erosion and sediment control plan will focus on preventing erosion to avoid or minimize generation of sediment. At a minimum, the plan will address the following elements:
 - All disturbed areas/construction zones that drain to tributaries of Hannon Creek will be isolated using standard perimeter silt fencing of all portions of the general construction zone that drain to the watercourses. Silt fencing will be regularly inspected and maintained as required.
 - All salvaged or stockpiled materials will be located a safe distance from any watercourses edges and stabilized to prevent migration of any sediment or other material to the watercourse.
 - All work areas or other disturbed surfaces draining to a watercourse will be stabilized and re-vegetated with appropriate native, non-invasive species as soon as feasible following construction.

- The interim erosion and sediment control measures will be left in place, monitored and maintained in proper working order until all disturbed areas draining to the watercourses are fully stabilized, including establishment of vegetative cover.
- All activity will be controlled so as to prevent entry of any petroleum products, debris or other potential contaminants/deleterious substances, in addition to sediment as outlined above, to the watercourses. Storage, maintenance or re-fuelling or maintenance of equipment will be conducted at least 30 m away from the watercourses. The Contractor will have an appropriate spills management/response plan in place throughout construction, including spill control and absorbent materials, instructions regarding their use and notification procedures.

5.1.5 Terrestrial Environment

Potential Environmental Effects

Direct Impacts

The preferred alignments will cause minimal impacts to vegetation resources and wildlife habitat. The vegetation and wildlife habitat in the vicinity of the preferred alignments is highly modified and culturally influenced with a large percentage of the area currently under cultivation. Direct impacts resulting from the road alignments addressed by this Transportation Master Plan Addendum are limited to potential removal of roadside vegetation along the existing Twenty Road East, potential removal of the edge of a cultural meadow / cultural thicket / meadow marsh mosaic and potential removal of small sections of three minor, shrub-dominated hedgerows. These impacts will be reviewed and refined during future design phases.

Indirect Impacts

In addition to the limited direct impacts outlined above, indirect impacts that could potentially occur as a result of construction are listed below: These impacts will be reviewed and refined during future design phases.

- Release of construction-generated sediment to adjacent vegetation areas.
- Vegetation clearing/damage beyond the working area.
- Spills of contaminants, fuels and other materials that may reach natural areas.
- Damage from excessive or improper application of herbicides and pesticides for right-of-way maintenance requirements.
- Damage to adjacent natural vegetation from roadway maintenance activities such as salting and sanding, structure/culvert repairs, ditch cleanout.
- Specifically, salt runoff and salt spray into vegetated areas may cause loss of vegetation vigour and in extreme cases, vegetation dieback, and spread of salt tolerant flora (halophytes).

- Changes in drainage patterns (groundwater and/or surface runoff flow) that can impact dependent vegetation/wetland areas located either upgradient or downgradient of the right-of-way. Blocking of existing surface/subsurface drainage patterns can result in upstream and downstream vegetation dieback/condition changes. An increase in downstream runoff can result in erosion impacts on receiving vegetation.

These potential indirect impacts to vegetation and habitat features can be managed through implementation of standard mitigation measures, as outlined below. However, some indirect impacts may be unavoidable and can only be partially mitigated (e.g. loss of vegetation vigour due to salt-spray).

Recommended Mitigation Measures

Employing the strategies outlined below will minimize direct impacts to vegetation and associated habitat features along preferred alignments, as well as protect adjacent vegetation/habitat features during and following construction. The standard mitigation strategies recommended include:

- Clear delineation of vegetation clearing zones and vegetation retention zones in both the Contract documents and in the field to minimize the risk of unnecessary vegetation impacts and avoid incidental impacts as a result of temporary stockpiling, debris disposal and access.
- The use of appropriate vegetation clearing techniques (e.g. trees to be felled away from the retained natural areas).
- Re-stabilize and re-vegetate exposed surfaces as soon as possible.
- Design and install stringent erosion and sediment control measures and maintain throughout construction (as detailed further under **Section 5.1.1 [Aquatic Environment]**).
- Proper containment and filtering of all construction-generated sediment (whether from dewatering or soil exposure from clearing and grubbing).
- Appropriate clearing and disposal of all construction-related debris following construction.
- Proper handling of potentially toxic construction materials and proper spills management based on a spill response plan.
- Implement environmental inspection during construction to ensure that protection measures are implemented, maintained and repaired and remedial measures are initiated where warranted.

General Wildlife Protection

- Under no circumstances will any animal (e.g., bird, turtle, snake, amphibian, mammal, butterfly) be knowingly harmed, harassed or otherwise disturbed. If an animal is encountered, it will be allowed to move away on its own. Small wildlife (e.g. snakes)

stranded within a contained construction zone will be captured and released by a suitably qualified individual (e.g. Environmental Inspector).

Migratory Bird Protection

- In accordance with the *Migratory Birds Convention Act* (MBCA), timing constraints will be applied to avoid vegetation clearing (including grubbing) and/or structure works (construction, maintenance) during the breeding bird season (approximately May 1st to August 8th). Occasionally bird species will precede (e.g. mid-April nesting) or exceed (e.g. September) the approximate breeding bird season window. It is the contractor's responsibility to ensure that active nests of migratory species are not disturbed during construction.
- The Contractor shall not destroy active nests (nests with eggs or young birds) of protected migratory birds, including species protected under the Provincial *Endangered Species Act* (ESA 2007). If a nesting migratory bird (or species protected under ESA 2007) is identified within or adjacent to the construction site and the construction activities are such that continuing construction in that area would result in a contravention of the MBCA or ESA (2007), the Contractor will cease work in the vicinity of the nest and notify the Contractor Administrator immediately. The Contractor Administrator will then contact Environment Canada to discuss mitigation options. If that nest is that of a provincially protected SAR, the Contractor Administrator will also contact MNR for direction.

5.1.6 Species at Risk

General effects to potential Species at Risk (SAR) habitat that are anticipated are outlined below. These will be reviewed and further refined during future study phases. Standard mitigation measures to manage potential effects to adjacent habitats (that *may* support SAR habitat) are also outlined below and will be reviewed, refined and expanded upon during future study phases. **If habitat for a threatened or endangered species is confirmed during future studies the MNR will be consulted to determine ESA permitting requirements.**

Potential Environmental Effects

- Widening of the existing Twenty Road East extension may result in some limited encroachment into a winter wheat field to the north. This can be considered *marginal* foraging habitat for **Barn Swallow** and marginal nesting habitat for **Bobolink**.
- Extension of Twenty Road East on a straight line eastward will remove a limited amount of a cultural meadow / cultural thicket / meadow marsh mosaic. This can be considered foraging habitat for **Barn Swallow**, *very marginal* nesting habitat for **Eastern Meadowlark** and **Yellow-breasted Chat**, *marginal* habitat for **Milksnake** and *very marginal* habitat for **Eastern Ribbonsnake**. It has the potential to support **Monarch** if milkweed occurs in this area.

- The extension of Twenty Road East on a straight line eastward may remove a portion of the shrub-dominated hedgerow in this area. The hedgerow provides *marginal* habitat for **Milksnake** due to its connectivity with the cultural thicket / cultural meadow / meadow marsh mosaic.
- The south extension of the Trinity Church Road corridor will cross cultivated fields (planted in corn in 2012) and two minor hedgerows. These features provide *very marginal* habitat for **Milksnake**.

Recommended Mitigation Measures

The mitigation measures outlined previously for the terrestrial environment (**Section 5.1.2 [Terrestrial Environment]**) generally will also protect any retained habitat that is potentially suitable for SAR. Future field work is recommended to further screen the affected habitats for SAR suitability and to assess them for potential presence of SAR. As noted previously, **if habitat for a threatened or endangered species is confirmed during future studies the MNR will be consulted to determine ESA permitting requirements** which would include specific mitigation and compensation measures to provide a net benefit to the species.

5.1.7 Groundwater

Potential impacts to groundwater may include water quality impacts due to spills.

In keeping with mitigation identified for the aquatic environment (**Section 5.1.1 [Aquatic Environment]**) all activity will be controlled so as to prevent entry of any petroleum products, debris or other potential contaminants/deleterious substances, in addition to sediment as outlined above, to the watercourses. Storage, maintenance or re-fuelling or maintenance of equipment will be conducted at least 30 m away from the watercourses. The Contractor will have an appropriate spills management/response plan in place throughout construction, including spill control and absorbent materials, instructions regarding their use and notification procedures.

5.2 SOCIAL-ECONOMIC ENVIRONMENT

5.2.4 Current Land Use

Potential impacts to current land use may include impacts to business operations and/or access to property.

During construction service/access disruptions will be minimized using standard City protocol and procedures. The City of Hamilton (Engineering Services) will provide notice to residents and businesses directly adjacent to construction sites prior to construction, typically at the time of tender, with follow-up notices provided by construction staff closer to commencement of construction. Notices are not provided for short-term projects.

Tied to the creation of a traffic island along Glover Road, restrictive signs will be installed along Glover Road. The intent is to discourage trucks from travelling through the Glover Road residential area.

The Glover Road traffic island will be designed during Detail Design. The following will be considered:

- The island should look pleasing and be a positive addition to the streetscape.
- If vegetation is to be planted it should be easily maintained and not impact vehicle sightlines. The size of the island may limit planting opportunities.
- Property impacts should be minimized.
- Avoid impacts to entrances (driveways).

5.2.5 Future Land Use

No notable adverse impacts to future land use are anticipated as the transportation network has been developed to meet transportation need and be in keeping with ongoing and anticipated development.

5.2.6 Heritage and Archaeology

No cultural heritage resources have been identified within the business park (City of Hamilton, 2011). As a result, impacts to cultural heritage resources are not anticipated.

Stage 2 Archaeological Assessment will be completed prior to construction for lands with archaeological potential. If necessary, further assessment will be completed based on findings from Stage 2.

In the event of the discovery of archaeological remains or if deeply buried archaeological remains are encountered during construction activities, the Ministry of Tourism, Culture and Sport will be notified immediately and work in the area shall stop. Also, in the event that human remains or burials are encountered during construction activities, the Contractor shall immediately cease operations and notify the Contract Administrator. The Hamilton Police Service, Ministry of Tourism, Culture and Sport Regional Archaeologist, and the Registrar of the Ministry of Government Services Cemeteries Regulations Unit shall be notified.

Potentially interested Aboriginal communities will be notified of the discovery of any archaeological remains, human remains or burials that may be of Aboriginal interest.

5.2.7 Nuisance Effects

Construction related nuisance effect may include noise and localized air quality impacts. Those impacts are anticipated to be temporary and typical to road construction works. The following best management practices will be implemented:

- Maintain construction equipment in good operating condition to prevent unnecessary noise and emissions.

- Minimize dust through the use of dust control measures.
- Restrict construction activities to hours prescribed by the local noise bylaw.

In addition, it is noteworthy that the City will review noise conditions and abatement requirements for all new development within the business park.

5.2.8 Utilities

The City of Hamilton is currently in the process of extending services to the business park and is coordinating with utilities to plan utility layouts with consideration for the transportation network. Should any utilities require relocation or protection during construction the affected utilities will be contacted and consulted in advance of construction.

5.3 TRANSPORTATION NETWORK

5.3.4 Existing Road Network

During construction temporary service or traffic disruption may occur (e.g. temporary road or lane closure). During construction service/access disruptions will be minimized using standard City protocol and procedures. Emergency Services will be notified in advance of construction using the City's standard protocol and procedures.

5.3.5 Rail Trail

The Rail Trail is not impacted by the road works addressed by this Transportation Master Plan Addendum.

5.3.6 Future Traffic Conditions

No notable adverse impacts to future traffic conditions are anticipated as the transportation network has been developed to meet transportation need and be in keeping with ongoing and anticipated development.

6 PUBLIC AND AGENCY CONSULTATION

6.1 PUBLIC CONSULTATION

Two public consultation events were held as part of the Transportation Master Plan Addendum study:

- Public Information Centre (PIC) – June 25, 2012
- Glover Road Public Meeting – December 4, 2012

The public was notified of the Study Commencement and PIC via newspaper notices published in the *Hamilton Spectator*, the *Mountain News*, and the *Glanbrook Gazette*. In addition, notification letters were distributed by direct mail and email to stakeholders and local residents.

Notification letters regarding the Glover Road Public Meeting were sent via direct mail and email.

A copy of the newspaper notices and the notification letters mentioned above are provided in **Appendix B**.

Consultation notices and corresponding display materials and comment forms were also posted to the project website: **www.hamilton.ca/redhilltmpaddendum**.

All contacts on the study contact list have been sent notification of the public review period for this Transportation Master Plan Addendum and a notice regarding the review period as also been published in the *Hamilton Spectator*, the *Mountain News*, and the *Glanbrook Gazette*.

The following sections provide additional detail regarding the PIC and Glover Road Public Meeting.

6.1.4 Public Information Centre (June 25, 2012)

A Public Information Centre (PIC) was held on June 25, 2012 from 6:00pm to 8:00pm at the Hamilton Church of God (1338 Stone Church Road East, Hamilton, ON) as a drop-in style open house session. Project Team members were available to answer questions and discuss the project with agencies and members of the public. The purpose of the PIC was to provide the public and interested stakeholders with an opportunity to review the alternatives for Twenty Road and Glover Road, and the evaluation of alternatives and recommended alternative for Twenty Road.

A copy of the PIC display boards is provided in **Appendix C**.

In total, 62 people signed in at the PIC. Attendees included local residents, adjacent property owners, and the local City Councillor (Ward 11). The PIC was also attended by Hamilton Police Services and a representative from the *Hamilton Spectator*. Following the PIC, an article was published by the *Hamilton Spectator* entitled *Red Hill residents hear City's options to ease traffic concerns* (Hamilton Spectator 2012).

The following summarizes the common verbal and written comments received at the PIC:

- Preference for Glover Road Alternative 1 (keep open with transition and signs).
- Preference for Glover Road Alternative 2 (back-to-back cul-de-sacs).
- Concerns regarding traffic and truck traffic within and near the business park along Nebo Road, Glover Road and Trinity Church Road.
- Desire to see more speed and truck route enforcement within and near the business park.
- Questions regarding future plans at intersections (e.g. design, signs, signalization).
- Questions regarding timing for road works (e.g. Dartnall Road Extension, Trinity Church Arterial Road Corridor)
- Questions regarding the approved Trinity Church Arterial Road Corridor and associated impacts and mitigation (e.g. berm or wall by residents along Trinity Church Road).

Comment submissions were requested by July 13, 2012. **Appendix C** provides a comment-response table outlining the comments received as a result of the PIC and the corresponding responses.

6.1.5 Glover Road Public Meeting (December 4, 2012)

A Glover Road public meeting was held on December 4, 2012 at the Hamilton Church of God (1338 Stone Church Road East, Hamilton, ON) as a drop-in style open house session from 6:00pm to 7:00pm and a presentation and discussion session from 7:00pm to 8:00pm. Project Team members were available to answer questions and discuss the project. The purpose of the meeting was to provide the public and interested stakeholders with an opportunity to review the evaluation of alternatives for Glover Road.

A copy of the public meeting display boards is provided in **Appendix D**.

In total, 28 people signed in at the meeting. Attendees included local residents, adjacent property owners, and the local City Councillor (Ward 11). The majority of attendees (~85%) were residents of Glover Road.

The following summarizes the common verbal and written received at the meeting:

- Preference for cul-de-sacs (Alternative 2).
- Preference for traffic island (Alternative 3) unless it impedes services in which case the preference is to do nothing (Alternative 1).
- Suggestion that consideration should be given to a cul-de-sac at Dickenson Road and Glover Road.

- Concerns regarding traffic and other impacts (e.g. noise, garbage, tree removal, changes to property value) associated with the business park.
- Desire for services (e.g. snow plowing, garbage removal, school buses, emergency services) to be maintained.
- Suggestion that if a traffic island is created it should be highly visible.
- Desire for street lights to be added to Glover Road.

Comment submissions were requested by December 18, 2012. **Appendix D** provides a comment-response table outlining the comments received as a result of the meeting and the corresponding responses.

6.1.5.1 Glover Road Petition

In the context of focused consultation completed regarding the Glover Road alternatives, it is important to note that a petition was received by the City's Planning Committee on November 8, 2011. The petition was signed by residents of the residential area along Glover Road south of the business park and requested that the City construct a cul-de-sac between 580 Glover Road and the business park (with reference to the Maple Leaf Foods development south of Twenty Road).

It is noteworthy that the petition was received prior to the commencement of the study for the Red Hill Business Park South Transportation Master Plan Addendum. In response to the petition, consideration of cul-de-sacs along Glover Road south of the business park (i.e. Glover Road Alternative 2) was included as part of the scope for this study. In addition, in response to feedback received at the June 25, 2012 Public Information Center a traffic island alternative (Glover Road Alternative 3) was added to the alternatives to be evaluated. The evaluation of alternatives was presented, reviewed and discussed at the Glover Road public meeting on December 4, 2012. For information regarding the evaluation of the Glover Road alternatives and identification of the preferred alternative please refer to **Section 4.3.3 (Glover Road: Assessment and Evaluation of Alternatives)**.

6.2 AGENCY CONSULTATION

Potentially interested agencies were identified based on the City of Hamilton's Master Contact List used for City studies. Potentially interested agencies were sent notification regarding the study commencement (sent March 16, 2012), Public Information Centre (sent June 12, 2012).

Exhibit 6.2-1 provides a summary of agency specific consultation completed in support of this Transportation Master Plan Addendum.

EXHIBIT 6.2-1: SUMMARY OF AGENCY SPECIFIC CONSULTATION

Agency	Focused Consultation
Hamilton Conservation Authority (HCA)	<ul style="list-style-type: none">• Input re: existing conditions based on information on file at HCA• Study specific field visit on May 24, 2012• Feedback regarding the study specific Species at Risk Screening (memo on file at City)• Feedback regarding the draft TMP Addendum
Ministry of Natural Resources (MNR)	<ul style="list-style-type: none">• Input re: existing conditions based on information on file at MNR• Feedback regarding the study specific Species at Risk Screening (memo on file at City)
Hamilton Fire Department	<ul style="list-style-type: none">• Input re: anticipated impacts to response time associated with Glover Road Alternative 2 (cul-de-sacs)
Hamilton Police Service	<ul style="list-style-type: none">• Input re: anticipated impacts to response time associated with Glover Road Alternative 2 (cul-de-sacs)
Hamilton Emergency Medical Services	<ul style="list-style-type: none">• Input re: anticipated impacts to response time associated with Glover Road Alternative 2 (cul-de-sacs)

In addition, information was sought and received from relevant and interested City Departments through three meetings held at project milestones and City staff review feedback regarding study documentation.

6.3 ABORIGINAL CONSULTATION

Potentially interested Aboriginal community and organization representatives were sent notification regarding the study commencement (sent March 15, 2012), Public Information Centre (sent June 12, 2012). Notification letters were sent to the following:

- Métis Nation of Ontario
- Six Nations of the Grand River Territory First Nation Elected Chief and Council
- Mississaugas of New Credit First Nation
- Huron-Wendat Nation Council
- Council of Ontario Chiefs
- Haudenosaunee Resource Centre
- Hamilton Regional Indian Centre
- Ontario Federation of Indian Friendship

The notification letters invited participation in the Transportation Master Plan Addendum including the opportunity to discuss how a community/organization may wish to participate. The study commencement letter also included a comment form to express comments, concerns or proposed requirements the community/organization may have regarding this study.

No comments or expressions of interest in the study were received from the notified Aboriginal communities and organizations.

In addition, as part of agency consultation notification was sent to Indian and Northern Affairs Canada (now Aboriginal Affairs and Northern Development Canada). Prior to filing this report, no response has been received.

7 NEXT STEPS FOR PROJECT IMPLEMENTATION

7.1 ELEMENTS REQUIRING FURTHER EA APPROVALS

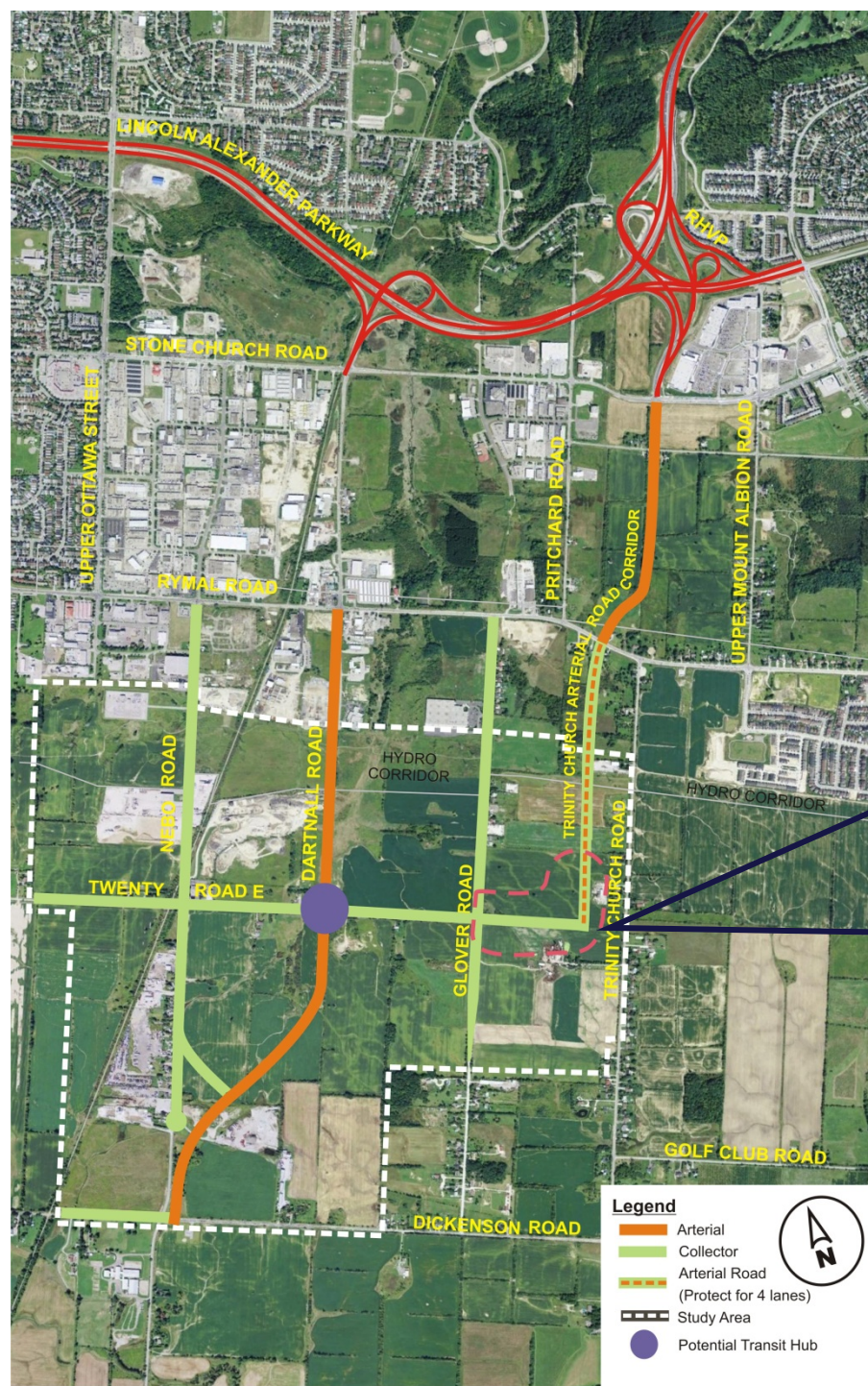
This Transportation Master Plan Addendum completes Phases 1 and 2 of the Municipal Class EA process for the road works addressed in this report.

The rehabilitation of Twenty Road from Dartnall Road to Glover Road is considered a Schedule B project under the Municipal Class EA. As a result, further reporting is not required.

The direct easterly extension of Twenty Road from Glover Road to the Trinity Church Arterial Road Corridor and the associated southerly extension of the Trinity Church Arterial Road Corridor to meet Twenty Road is considered a Schedule C project under the Municipal Class EA. As a result, the remaining phases, i.e. Phases 3 and 4, will be completed subsequent to this Transportation Master Plan Addendum either by the City of Hamilton or the private sector as part of a development application governed by the *Planning Act*. As noted in **Exhibit 1.2.1-1 (Municipal Class EA Process)**, Phase 3 addresses alternative design concepts for the preferred solution (i.e. Twenty Road Alternative 2) and Phase 4 is the preparation of an Environmental Study Report. Stakeholder consultation will be completed during Phases 3 and 4. The study area for Phases 3 and 4 is noted on **Exhibit 7.1-1**.

The addition of a traffic island on Glover Road north of Dickenson Road East, including the associated traffic signs, is considered a Schedule A+ project under the Municipal Class EA. As a result, further reporting is not required; however, as the design of the traffic island is developed it will be with consideration of the factors outlined in **Section 4.3.3.1 (Glover Road Traffic Signs and Traffic Island Design)** and stakeholders will be encouraged to participate through the City of Hamilton's Traffic Island Beautification Program.

EXHIBIT 7.1-1: FUTURE STUDY AREA – TWENTY ROAD FROM GLOVER ROAD TO THE TRINITY CHURCH ARTERIAL ROAD CORRIDOR (SCHEDULE C PROJECT)



STUDY AREA for
Twenty Road
Extension from
Glover Road east to
the Trinity Church
Arterial Road
Corridor.

Intersection
configuration to be
determined during
Detail Design (i.e.
during Phase 3 of the
Municipal Class EA

7.2 FIVE YEAR REVIEW REQUIREMENTS

A time lapse may occur between the filing of a Master Plan and the implementation of the preferred transportation network. In this situation the proposed project and the environmental mitigation measures may no longer be valid.

The Municipal Class EA indicates that a Master Plan should be reviewed every five years to determine the need for a detailed formal review and/or updating. As such, should the period of time from filing of the Notice of Completion of the Master Plan in the public record to the proposed commencement of construction of the project exceed five years, the proponent shall review the planning and design process and current environmental setting to ensure that the project and mitigation measures are still valid given the current planning context. This review shall be recorded as an addendum to the Master Plan. The addendum shall be placed on the public record and will undergo a 30-day addendum review period. A Notice of Filing of Addendum shall be placed on the public record and shall include the public's right to request a Part II Order during the 30-day addendum review period. If no Part II Order requests are received by the end of the 30-day review period the proponent will be free to proceed with implementation and construction.

This Transportation Master Plan Addendum addresses a review of the original 2006 Transportation Master Plan. The Transportation Master Plan Addendum is subject to the same review requirements as outlined in the Municipal Class EA for a Master Plan.

8 CLASS EA PRINCIPLES

This study was undertaken following the environmental planning process for Master Plans under the Municipal Class Environmental Assessment (Municipal Engineers Association, 2000 as amended in 2007 & 2011). The approach followed, known as Approach #2, addresses Phases 1 and 2 of the Class EA process where the level of investigation, consultation and documentation are sufficient to fulfil the requirements for Schedule B projects.

This Transportation Master Plan Addendum is intended to fulfill the Class EA requirements for the identified Schedule A+ project (Glover Road traffic island) and Schedule B project (Twenty Road from Dartnall Road to Glover Road) and to outline additional work required to complete Phases 3 and 4 of the Class EA process for the identified Schedule C project (Twenty Road from Glover Road to the Trinity Church Arterial Road Corridor).

This Transportation Master Plan Addendum followed a planning process that incorporates the following environmental assessment principles. **Exhibit 8.0-1** provides an overview of how the environmental assessment principals have been addressed.

EXHIBIT 8.0-1: OVERVIEW OF PLANNING PRINCIPLES INCORPORATED IN THE RED HILL BUSINESS PARK SOUTH TRANSPORTATION MASTER PLAN ADDENDUM

Environmental Assessment Principle	How the Environmental Assessment Principle was addressed	Reference within this report
Consultation with affected parties early in the planning process so that decision making is cooperative	Public, stakeholder and agency consultation was undertaken throughout the study and included a Public Information Centre, a Public Meeting and external agency consultation.	Chapter 6
Consideration of a reasonable range of alternatives	A reasonable range of alternatives was considered, including a “Do Nothing” alternatives (i.e. Twenty Road Alternative 1, Glover Road Alternative 1).	Chapter 4
Identification and consideration of the effects of each alternative on all aspects of the environment	The study included an inventory of the existing natural, cultural and socio-economic environment. All aspects of the environment were considered in the evaluation of alternatives.	Chapters 3 & 4

Environmental Assessment Principle	How the Environmental Assessment Principle was addressed	Reference within this report
Systematic evaluation of advantages and disadvantages of identified alternatives to determine their net environmental effects	<p>Each alternative was assessed based on the factor specific evaluations criteria. Natural, social, economic, cultural and transportation factors were considered in the development of key evaluation criteria for each factor. The result of the assessment was then reviewed and summarized in an overall evaluation which then allowed for the selection of the preferred alternative.</p> <p>The evaluation criteria were based on a holistic approach to review the potential environmental effects (natural, social, economic, cultural, and transportation factors) of each alternative. The factor specific evaluation criteria were developed in consideration of general and study area specific potential environmental effects.</p>	Chapter 4
Provision of clear and complete documentation of the planning process followed, to allow “traceability” of decision making with respect to the project	<p>The study objectives were considered in all aspects of the study including development of alternatives, technical assessment, evaluation criteria/process and consultation.</p> <p>Documentation in this Transportation Master Plan Addendum includes the need and justification for the recommended road improvements identified for Phase 1 and Phase 2 of the Municipal Class EA process.</p>	<p>Entire Transportation Master Plan Addendum Report</p> <p>Planning Context and Problem / Opportunity Statement outlined in Section 2.0</p>

9 REFERENCES

- Archaeological Services Inc. 2006. Stage 1 Archaeological Assessment Rymal Road Planning Area (ROPA 9 Lands) Master Plan Class Environmental Assessment Study. <http://www.hamilton.ca/NR/rdonlyres/2C94F66A-4C53-4B67-819E-6F763511DBA3/0/TrinityChurchCorridorC2ArchaeologyReport.pdf>
- City of Hamilton, McCormick Rankin Corporation and Ecoplans Limited. 2006. North Glanbrook Industrial Business Park South Transportation Master Plan.
- City of Hamilton. 2008. Installation of Modern Roundabouts, Appendix 'A' of Report PW08078.
- City of Hamilton and iTrans Consulting Inc. 2007. Trinity Church Arterial Corridor Class Environmental Assessment: Phases 3 & 4.
- City of Hamilton, McCormick Rankin Corporation and Ecoplans Limited. 2007. Dartnall Road Extension Class Environmental Assessment.
- City of Hamilton. 2010. City of Hamilton Truck Route Master Plan Study. http://www.hamilton.ca/NR/rdonlyres/88415F90-A2F0-454F-B938-E577EFD99A31/0/TTR_Truck_Route_Master_Plan_Study_DRAFT_with_appendices_20100423.pdf
- City of Hamilton. 2011. Ministry Approved Urban Hamilton Official Plan – Volume 1, Appendix F. <http://www.hamilton.ca/CityDepartments/PlanningEcDev/Divisions/StrategicServicesSpecialProjects/Policy+Planning/HamiltonNewOfficialPlan/MinistryApprovedUrbanHamiltonOfficialPlan.htm>
- City of Hamilton. 2012a. Hamilton Economic Development – Business Parks. <http://www.investinhamilton.ca/locate-expand/business-parks-2/#NorthGlanbrook>
- City of Hamilton. 2012b. Red Hill Business Park Transit Service (PW12100/PED12249) – (Ward 11). http://www.hamilton.ca/NR/rdonlyres/DE7AE4DA-B6B0-4DEA-B81D-698264DC4CD4/0/Dec05EDRMS_n383691_v1_035__Changes_to_the_Agenda__PW12100_PED12249.pdf
- Dougan and Associates. 2005. Hannon Creek Subwatershed: 2005 Spring Inventory: Terrestrial Ecology.
- Dougan and Associates. 2011. Dartnall Road and Rymal Road Class EA Terrestrial Environment.
- Hamilton Conservation Authority. 2007. Personal communication from Director of Watershed Planning & Engineering, Hamilton Conservation Authority, to City of Hamilton Public Works Department.

- Hamilton Spectator. 2012. Red Hill residents hear city's options to ease traffic concerns.
<http://www.thespec.com/news/local/article/750109--red-hill-residents-hear-city-s-options-to-ease-traffic-concerns>
- LGL. 2007. Natural Heritage Report - Trinity Church Arterial Corridor Class EA.
- Ministry of Natural Resources. 2007. Personal communication from Species at Risk Biologist, MNR Aylmer. to Natural Resource Solutions Inc.
- Ministry of Natural Resources. 2012a. Land Information Ontario.
http://www.mnr.gov.on.ca/en/Business/LIO/2ColumnSubPage/STEL02_167955.html
- Ministry of Natural Resources. 2012b. Personal Communication with District Planner, Guelph District.
- Natural Resource Solutions Inc. 2007. Memorandum re: Hannon Creek Subwatershed Study: Additional Analysis for American Badger.
- Niagara Peninsula Conservation Authority. 2012. Watershed Explorer.
<http://maps.niagararegion.ca/Navigator/?config=npca>
- SNC Lavalin. 2011. Hannon Creek Tributaries and Species at Risk Summary.
- TSH. 2006. Draft Stream Characterization Report.
- TSH and AECOM. 2009. Hannon Creek Subwatershed – North Glanbrook Industrial Business Park Master Drainage Plan.